

q 385.5 (in box)

OFFICE OF POPULATION CENSUSES AND SURVEYS
SOCIAL SURVEY DIVISION

Adult Dental Health in Scotland 1972

A survey carried out in collaboration
with the Scottish Dental Schools for the
Scottish Home and Health Department

J E Todd and
A Whitworth



HMSO £2.95 net

SOUTHAMPTON
UNIVERSITY LIBRARY

BOOK NUMBER	74-116407
CLASS MARK	#9 HN 385.5
	(in box)

OFFICE OF POPULATION CENSUSES AND SURVEYS
SOCIAL SURVEY DIVISION

Adult Dental Health in Scotland 1972

A survey carried out by Social Survey
Division of the Office of Population Censuses
and Surveys in collaboration with the
Scottish Dental Schools for the Scottish Home
and Health Department

**J E Todd and
A Whitworth**

London : Her Majesty's Stationery Office 1974



Acknowledgements

We would like to thank, on our behalf and on behalf of the three Scottish Dental Schools with whom we collaborated, all those who helped to make this rather complicated and involved project possible. Firstly we would like to thank the Dental Advisory Committee who helped and advised on the design of the criteria for the dental examination. We would also like to thank the Glasgow Dental School for acting as host throughout the planning and fieldwork stages. We would particularly like to thank Professor D. K. Mason, Mr. A. J. W. McKendrick and Mr. D. A. Sutherland for their invaluable contribution to the planning and organisation of the dental examination, to the training of the survey dentists and their interest throughout the project.

An inquiry such as this relies very heavily on the team of survey dentists who carry out the dental examinations and we would like to thank all of the examiners for their efforts both in the training sessions and in the fieldwork, for we realise that the application of strict criteria, and the home situation for an examination create difficulties which required a considerable amount of adaptability from the examiners.

We also thank the interviewers for their part in gathering the interview information, obtaining consent for the dental examination, looking after the dentist on the return visit, and recording the dental examination.

But, of course, without the co-operation of the members of the public selected in our sample we would have had no information to report, and so we would particularly like to thank those in our sample who agreed to take part, whose co-operation enabled us to achieve a very high response rate both at the interview stage, and at the dental examination stage.

Dental Advisory Committee

Dr. J. L. Trainer, Chief Dental Officer, Scottish Home and Health Department

Professor J. D. McEwen, University of Dundee

Mr. A. J. W. McKendrick, University of Dundee

Professor J. N. Mansbridge, University of Edinburgh

Dr. C. P. Wallis, University of Edinburgh

Professor D. K. Mason, University of Glasgow

Mr. K. W. Stephen, University of Glasgow

— Mr. D. A. Sutherland, University of Glasgow

Contents

Acknowledgements

Page

Introduction and Methods

1 Introduction

- 1.1 An Outline of the Scheme

2 The Survey Method

- 2.1 Selecting the Sample
2.2 The Electoral Register Sample for the Highlands and Islands
2.3 The Electoral Register Sample for the Main Part of Scotland
2.4 The Supplementary Sample of Young Persons
2.5 Obtaining the Information Required
2.6 The Co-operation Achieved
2.7 The Interview
2.8 A Dental Examination in the Home
2.9 Content of the Dental Examination
2.10 Recruitment and Training of the Dental Examiners
2.11 Supplementary Information from Dental Estimates Board Records

3 Non-response at the Dental Examination Stage

- 3.1 Differences Between Those Examined and Those Not Examined
3.2 Sample Size With and Without the Non-Examined

Total Tooth Loss

4 Total Tooth Loss Among Scottish Adults

- 4.1 Total Tooth Loss by Age, Sex and Social Class
4.2 Total Tooth Loss in Early Life

Decayed, Missing and Filled Teeth

5 Adults With Some Natural Teeth

- 5.1 The Condition of the Natural Teeth
5.2 The Condition of the Natural Teeth by Age, Sex and Social Class
5.3 The Condition of the Natural Teeth by Dental Attendance Pattern

Condition of the Gums

6 The Gum Condition of Dentate Adults

- 6.1 The Condition of the Gums
6.2 The Gum Condition of Dentate Adults by Age, Sex and Social Class
6.3 The Gum Condition of Dentate Adults by Dental Attendance Pattern

(v)

Dentures

	Page
7 The Provision of Dentures in Conjunction With Natural Teeth	80
7.1 The Range of Natural Tooth Replacement by Dentures	80
7.2 The Examination Assessment of Dentures	83
7.3 Do Dentate Adults with Dentures Wear Their Dentures?	86
7.4 Some of the Difficulties of Having Dentures	90
8 The Provision of Full Dentures	94
8.1 The Examination Assessment of Full Dentures	94
8.2 Do Adults with Full Dentures Wear Their Dentures?	97
8.3 Some of the Difficulties of Having Full Dentures	101
8.4 The Circumstances of Total Tooth Loss	106
9 The Potential Need for Dentures	111
9.1 The Potential Need for Dentures Among Adults who Rely Wholly on Natural Teeth	111
9.2 The (Further) Need for Dentures Among the Partially-Dentured	117
9.3 The Potential Need for Full Clearance	118
10 Dental State Prior to the Provision of Dentures	120
10.1 First-Time Provision of Dentures in Conjunction with Natural Teeth	120
10.2 Extensions to Dentures in Conjunction with Natural Teeth	122
10.3 People who Became Edentulous within About a Year of the Survey	124
10.4 The Proportion of Teeth Extracted for Different Reasons	128
General Topics	
11 The Highlands and Islands	132
11.1 Problems of Getting to the Dentist in the Highlands and Islands	132
11.2 Dental Health in the Two Parts of Scotland	133
12 Preferences for Dental Treatment	139
12.1 Preferences for the Treatment of Natural Teeth	139
12.2 Attitudes Towards Having Dentures	146
13 Cleaning Natural Teeth	149
13.1 The Frequency of Tooth Cleaning, by Attendance Pattern, Age and Social Class	149
13.2 The Method of Tooth Cleaning	151
13.3 Tooth Cleaning and Dental Health	155
14 Partial Dentures and Gum Conditions	161
15 What Knowledge do People Have About Factors Which Affect Natural Teeth, and How Do They Use It?	166
15.1 Which Factors Are Very Important for Keeping Teeth Healthy?	166
15.2 Who are the Regular Dental Attenders?	168
15.3 How Many Dentate Adults are Dentally Fit?	171

	Page
16 Who Lose Their Teeth First, Men or Women?	174
16.1 Opinions as to Who Lose Their Teeth First, Men or Women	174
16.2 Reasons Given as to Why One of the Sexes Lose Their Teeth First	177
17 Summary of Scottish Survey Findings, Including Comparisons with England and Wales	185
Appendices	
Appendix I - Planning and Organising the Dental Examination for the Scottish Adult Dental Health Survey By D. K. Mason, A. J. W. McKendrick and D. A. Sutherland	193
1. Organisation	194
2. Results of the Calibration Study	204
3. Dental Documents	208
Appendix II - The Questionnaires	221
Index	254

1 Introduction

In 1971 the Scottish Home and Health Department asked the Social Survey Division of the Office of Population Censuses and Surveys to carry out a survey in Scotland to assess the state of adult dental health, as no such data was currently available. Some information was available for England and Wales on the basis of a survey carried out in 1968* and the department wished to have similar and comparable information about Scotland.

A study was launched incorporating those features of the earlier inquiry which were necessary to maintain comparability together with a new approach to those aspects which hindsight suggested might be tackled differently. The main design was, of course, the same. This involved selecting a random sample of adults, approaching them to obtain an interview about dental habits, attitudes and experiences and then, if the person was willing, returning at a later date to carry out a dental examination in the home.

The Social Survey Division** specialises in survey research but has no dental manpower, so the Scottish Home and Health Department invited the Scottish Dental Schools to collaborate in the study. All three Scottish Dental Schools (Dundee, Edinburgh and Glasgow) contributed to the planning of the survey and a small group of dentists was nominated to take responsibility for the organisation and administration of the dental side of the inquiry. Throughout the planning and launching of the survey there was close collaboration between the Social Survey Division and the dental organisers.

* **Adult Dental Health in England and Wales in 1968** by P G Gray, J E Todd, G L Slack, J S Bulman. Carried out by the Government Social Survey (now a division of OPCS) and the London Hospital Medical College Dental School, for the DHSS.

** The Social Survey Division of the Office of Population Censuses and Surveys is the government agency for conducting surveys in the economic and social field. Its responsibilities cover survey work in Scotland as well as in England and Wales since no separate government survey agency exists for Scotland. This contrasts with the census and registration functions of OPCS which are carried out for England and Wales only, Scotland having a separate department.

The surveys carried out by Social Survey Division cover a wide range of topics: the fields of welfare, housing, health, motoring, employment, education and so on. The studies are usually based on a personal interview, carried out by a trained interviewer, with a national random sample of the people relevant to the subject matter. In this study we had the added advantage of a dental examination as well as the personal interview.

1.1 An Outline of the Scheme

A detailed description of the methods used for the survey will be found in Chapter 2. Briefly the scheme was as follows. The Social Survey Division designed and drew a random sample of adults in Scotland as a basis for the study. The dental organisers recruited 28 dentists to take part in the study, and planned the training course that would be needed to ensure that all the examiners were using the same criteria for their examinations. Before the main fieldwork was launched, the design of the interview and the dental examination was tested out on a small sample of the general public. This enabled some minor adjustments to be made to the scheme before carrying out the main fieldwork.

The one week training course, starting on April 10th 1972, was arranged for all the dentists and was carried out at the Glasgow Dental School. At the same time as the dentists were being trained, the interviewers who were to work on the survey attended briefing sessions which not only instructed them about interviewing for this particular project, but also included detailed training about how to record the dental examination.

Social Survey interviewers then approached the people selected in the sample and asked for their co-operation for an interview. At the end of the interview each informant was asked if he or she would co-operate further by having a dental examination which would be carried out in the home. If the person agreed then the interviewer returned with her survey dentist a few days later to carry out the examination. At this second visit the interviewer introduced the dentist to the person concerned and then, as the dentist carried out the examination, she recorded the information.

The fieldwork started immediately after the training course and continued until June 30th, when the examiners returned to the Glasgow Dental School to complete the re-calibration exercise which formed part of the measurement of examiner variability.

The response from the public was very high, not only for the interview but also for the examination, and we are very grateful for this co-operation. In fact 88% of the sample gave an interview and 80% gave an interview and had a dental examination.

While the main interest of the Scottish Home and Health Department centred on Scotland as a whole and a comparison with England and Wales they had a special interest in the dental health of adults who live in the least densely populated areas of Scotland. It is in such areas that some of the greatest problems of providing a dental service occur. Particular attention was therefore given to the Highlands and Islands, and a proportionately larger sample was drawn there in order that some results could be made available for that region separately. A person living in the Highlands and Islands was, in fact, five times as likely to be selected for our inquiry as someone living in the main part of Scotland. Consequently, throughout the report, when presenting figures for Scotland as a whole the contribution from the Highlands and Islands has been downweighted so as to correctly represent the whole country.

2 The Survey Method

2.1 Selecting the Sample

The survey was to be carried out among adults in Scotland. As with the study in England and Wales we defined adult as being aged 16 or over at the time of the interview. In view of the difficulties of obtaining an adequate sample of people living at institutional addresses it was agreed that the study should be confined to adults in private households. The most comprehensive list available of the adult population is the Electoral Register, which lists people and their addresses, and it was decided to select our sample from this. The Electoral Register, however, lists only those people eligible to vote, that is those aged 18 and over and those who will become 18 during the life of the register. A special method therefore had to be used to augment the sample, to include the youngest adults*.

As mentioned in Section 1.1 the Home and Health Department was interested in the dental health of the people living in the Highlands and Islands. There are a number of definitions of the Highlands and Islands and the one we used was as laid out in the Scottish Development Circular No.4/1972 Annexes A and B**.

This definition included in the Highlands and Islands all of Orkney and Shetland, Caithness, Sutherland, Inverness, Ross and Cromarty and Nairn. Part only of three other counties fell within the definition of the Highlands and Islands. The Kirkmichael electoral division of Banff was included, as were Cromdale and Inverallen electoral divisions and the Burgh of Grantown on Spey in Moray. In Argyll the electoral divisions of Morvern, Ardgour, Sunart, Ardnamurchan, Kintochleven and Ballachulish were included as Highland areas.

Relatively speaking, the numbers of people in the Highlands and Islands are small (making up approximately five percent of the total Scottish population). In order to examine their position separately we needed to increase the size of the sample selected from that area, relative to the rest of Scotland. So we selected a sample for the Highlands and Islands five times greater than that which would have been selected had one selection system been used throughout Scotland. This enables us to examine the results for that region separately, but of course also necessitates that the sample from the Highlands and Islands is downweighted by a factor of five before contributing to the results for the whole of Scotland.

Our sample design can therefore be looked upon as consisting of two samples from

* See Section 2.4 for the method used.

**Adjustments to Boundaries of Regional and District Authorities outlined in the White Paper "Reform of Local Government in Scotland" CMND 4583.

the Electoral Register, one in the Highlands and Islands, and one in the main part of Scotland. Each of these samples was augmented by a supplementary sample of young persons, a group for which the Electoral Register is not adequate as a sample frame.

2.2 The Electoral Register Sample for the Highlands and Islands

Throughout Scotland the sample design involved two stages, firstly a selection of districts and then a selection of people from within those districts. In the Highlands and Islands it is difficult to define suitable districts for first stage units. We did not want them to be geographically very large, neither did we want them to vary greatly in population size. It was finally decided to form groups of electoral divisions of roughly equal electorate size, and the whole of the Highlands and Islands was grouped into 158 such districts. These districts were stratified geographically and then 30 of them selected with probability proportionate to the electorate on the 1971/72 register. Within each of these 30 districts we selected a sample of named people with probability inversely proportionate to the 1971/72 electorate in that district. Using this sampling method the overall probability of the selection of each individual in the Highlands and Islands was equal.

The actual selection of the names and addresses for the sample was in fact delayed until the 1972/73 Electoral Register was available, using the sampling fractions calculated from the earlier register to retain uniform probability of selection. This had the advantage of making the address lists as up to date as possible. The register, which is compiled in October, becomes available in February. As soon as the 1972/73 register was available we carried out the selection of names and launched the fieldwork in early April, 1972. A sample of 588 names was selected in the Highlands and Islands.

2.3 The Electoral Register Sample for the Main Part of Scotland

In the main part of Scotland the sampling design was similar to that in the Highlands and Islands except that the first stage units were larger in terms of population. They were made up of groups of wards and parishes. There were, in all, 225 of these districts in the Main part of Scotland. Again these districts were stratified geographically, and 30 of them selected with probability proportionate to the electorate in 1971/72. From these districts individuals were selected with probability inversely proportionate to the electorate in 1971/72, and again the actual names and addresses were not drawn until the 1972/73 Electoral Register became available. In the Main part of Scotland 2405 names and addresses were selected from the register.

2.4 The Supplementary Sample of Young Persons

The samples selected from the Electoral Register were drawn in advance of the fieldwork, but of course only included people aged 18 and over (and some 17 year olds). From previous experience of using the Electoral Register as a sampling frame we knew that not all those eligible to be on the register are in fact on it, this being particularly true of the younger age groups. We therefore used a method of selecting young persons which not only gave us a sample of those persons not yet eligible to be registered but also augmented the sample of young persons aged 17-21 by adding in an appropriate number of those not registered who should have been.

Unfortunately no special list exists from which a sample of young people can be drawn. This makes it necessary to start with a sample of households and then select all the young people in those households. Of course we would need to know the chance of selection of the household so that we could add the youngsters into the main sample with the correct weight. Adding the youngsters in is obviously facilitated if the chance of selection of the household (and thereby the youngster) is equal to the chance of selection of the named people sampled from the register, in which case no re-weighting is involved.

As we had already chosen a sample of named persons from the register we decided to use this as a basis for our supplementary sample. These people had been selected from the register with equal probability; if we include all their households in our supplementary sample then those households with several adults on the register will have had several chances of selection. To overcome this we only included the household (and all the young people in it) where the named person was the Head of Household. If the named person was not the Head of Household we were only concerned with the named individual. This method relies on the fact that by Social Survey definitions there is only one Head of Household per household, and thus the chance of picking the Head of Household as the named person is inversely proportionate to the number of adults on the register for that household. This method gave us a sample of households selected with equal probability not only to each other but also equal to the probability of selection of the people selected directly from the Electoral Register. This meant that the young people selected through the supplementary sample were directly additive to the Electoral Register samples without re-weighting.

This method of extending the sample cannot be done in advance of the fieldwork since information about the named person has to be obtained by the interviewer before the procedure can be put into operation. Initially the interviewer started with the sample of named persons whom she needed to interview. At the end of the interview she checked, from information already obtained, whether the person she was talking to was the Head of Household. If he was not she had nothing more to do in terms of the supplementary sample. If he was the Head of Household then she checked the household composition to see if there were any young people aged 16-21. If there were not she again had nothing more to do in terms of sampling. If the named person was the Head of Household and there were young people aged 16-21 in the household, then she continued by checking whether the young people were on the Electoral Register (we had issued the interviewer with a check list of the names of all the people on the Electoral Register at the address of the named person). If they were on it she ignored them since they had already had a chance of selection in the sample. If they were not on it then she interviewed them. Of course none of the 16 year olds were on the Electoral Register and she interviewed all of them.

Providing the check list for the interviewer became unmanageable in some circumstances since it had to be done for every named person in the sample. In the tenements in Glasgow there are many different households listed under one address, and when the number of people listed was 20 or more we only included on the check list those people with the same surname as the selected person. Also in rural areas people on the Electoral Register are listed not within addresses but alphabetically by surname; the amount of time and effort that would have been necessary in compiling a check list was unwarranted and in these cases also we only included on the check list the people at that address with the same surname as the selected person. For addresses where a full check list was not given the names of

any young people interviewed by way of the supplementary sample were later checked against the register. In fact none of them proved to be registered, so all this group of interviews could be accepted.

Any method of field sampling is difficult to operate accurately, but we had used a similar scheme on the study in England and Wales, and had learned from that experience for the Scottish study. A check on the household composition showed that all the young people who should have been selected were selected, together with three young people who were selected erroneously because of some ambiguity over the household composition and these were rejected.

Altogether the supplementary sampling method resulted in an addition of 121 young persons to our sample size, 65 of whom were aged 16, and 56 of whom were 17-21 but not on the Electoral Register. For the 17 year olds selected by way of the supplementary sample we checked the date of birth with the regulations concerning registration and found that just under half should have been on the register but were not. The inadequate coverage of the register was not nearly so marked among the 18-21's.

Where the named person from the Electoral Register did not co-operate in the interview we could not establish household composition. In these cases we do not know how many young people would have entered our sample.

Estimating the numbers of young people that might have been expected in a sample of the size we achieved showed that our supplementary sample helped us to achieve approximately the correct proportion of young people.

2.5 Obtaining the Information Required

Two different kinds of data were being collected on this survey, ie information from a personal interview, and dental information from a home examination carried out by a dentist. When planning such an inquiry consideration must be given to how the methods of collection best fit together. Since the two sources of information were to be used in conjunction with each other it was essential that there should be the shortest possible time lapse between their collection; otherwise the data could become incompatible, for example, if a person visited the dentist and had some teeth extracted and a partial denture fitted between the time of the interview and the examination. Apart from this, experience suggests that in a survey with two phases the best response from the general public is achieved if the two phases are as near to each other in time as possible.

This raises the question of whether the two phases should, in fact, be completed at a single visit. This could be done in one of two ways: either the interview could be carried out with the dentist present, and the examination follow straight away, or the dentist could be a short distance away "on call" to conduct the examination at the end of the interview.

There are severe disadvantages with both of these methods. Firstly if the dentist were present during the interview it is likely that the person would not feel free to state his or her dental attitudes, especially if they were negative or neutral. It is therefore a situation to avoid if at all possible. Secondly the surveys we do are on a voluntary basis and if the examination were to take place immediately after the interview (by either method) then this might imply an expectation of co-operation which would be unfair to the individual.

There would also be some practical disadvantages in conducting both parts at a single visit. If the examination were to follow directly after the interview (either with the dentist present or "on call"), the dentist would be involved in considerable periods of non-productive waiting. In addition, we would need to have as many dentists as interviewers, whereas if the examination was carried out at a subsequent visit a dentist could work with more than one interviewer.

Taking all these factors into account we decided that a re-call for the examination was the best method for us to use. A few exceptions were made in the Highlands and Islands where some of the informants lived in very isolated places. In these circumstances we arranged for the dentist to be "on call" in the vicinity so as to avoid many miles of travelling for the second visit.

2.6 The Co-operation Achieved

In any survey the representative nature of an originally reliable sample can be jeopardised if a high level of response is not achieved. Any steps which can be taken to keep response to a maximum are, therefore, always worthwhile.

With a sample of named persons selected from the Electoral Register there are three main sources of loss. The person may have moved away from the address given on the Electoral Register; the person may be out frequently and difficult to contact; or the person may decline to take part in the inquiry.

Various steps were taken to minimise these losses. The survey was timed to take place in April-June 1972 so that the selection of names could be made from the 1972/73 Electoral Register as soon as it became available in February 1972. This meant that the addresses were as up to date as they could possibly be; yet even so some were out of date because the register had, of course, been compiled the previous October. To combat this the interviewers obtained the new addresses of movers where possible and contacted them there. As a result we only lost just under 4% of the total sample as selected because people had moved.

In order to minimise the loss due to never finding a person at home the interviewers called at least three times at different times of day, and more than that if they were in the vicinity. Difficulty in making contact with some people in the sample may arise because they were ill, away in hospital, or away for some other reason. In some cases the person had died between when the register was compiled the previous October and when the fieldwork was carried out. If the period of absence or illness was longer than the fieldwork period then no contact could be made. In all, 3% of the sample were never contacted by the interviewers.

The other main reason for not obtaining an interview is if the person declines to co-operate. Co-operation from the public depends to some extent on the subject matter of the survey. We expected that some people might react nervously against the survey at the first mention of anything connected with dental health, and that these people would need reassurance from the interviewer to persuade them to co-operate. There would be others who might be doubtful that they had any contribution to make and would therefore need encouragement from the interviewer. In view of these difficulties we were gratified that the proportion of people who refused to be interviewed was only 5%. Interviews were successfully carried out with the other 88% of the sample.

Since this inquiry had two parts, an interview followed by an examination, there was another stage at which co-operation could be lost. At the end of the interview each person was asked if he or she was willing to have the examination. The interviewer was able to reassure the informant about the simplicity of the examination and to carry over the goodwill from the interview situation since she herself was to return with the dentist for the second visit. The interviewer's explanation of what was required and the fact that she herself would be returning at the second visit contributed considerably to the high level of co-operation that was achieved; only a further 5% of the total sample said that they were not willing to have the dental examination.

With two phases separated by time one also risks losing the co-operation of some of the respondents between the two visits. This kind of loss results from a person changing his mind about having the examination after having initially said yes, or the person not being available at the second visit, for example because he or she had become ill. In order to keep this loss to a minimum we asked the interviewers to make the second visit as soon after the interview as possible, and eight out of ten examinations were carried out within a week of the interview, and virtually all of the examinations were completed within a fortnight of the interview. Nevertheless there were some losses after the initial agreement; a further 3% of the total sample were not examined although they had, at the interview stage, agreed to the examination.

In total, therefore, 80% of the original sample were both interviewed and dentally examined. For a health examination we felt that this response from the public was excellent.

In Figure 2.1 we show how the size of the total set sample is derived from the various sub-samples, and what the response was in detail. There was no appreciable difference in response between the Highlands and Islands and the Main part of Scotland except that the proportion of people in the Highlands and Islands who declined to take part in the interview was lower.

2.7 The Interview

The topics we wished to cover during the interview included people's attitudes towards dentistry, their habits with respect to dental health and their past dental experience. The interview was structured, that is all interviews followed a set pattern of questions, in a particular order (the questionnaires are reproduced in the appendix).

With respect to their dental situation adults are generally in one of three main groups: those who have some natural teeth and have never had dentures of any sort, those who have some natural teeth but also wear (or have worn) a denture and those who have no natural teeth at all (most of whom have a full set of dentures). To have had a single all-purpose questionnaire would have meant the interviewer having to skip large numbers of questions when they did not apply. In order to make the questionnaire relevant to the person concerned we designed a questionnaire for each of the three different dental types using a short introductory questionnaire to ascertain which type of person was being interviewed.

Since the interview was to be followed by a request for a dental examination the length of the interview was kept fairly short so as not to exhaust the person's

Figure 2.1

SAMPLE SIZE AND THE RESPONSE ACHIEVED

SAMPLE SIZE:	<i>Highlands and Islands</i>		<i>Main Part of Scotland</i>	
	No.		No.	
Sample selected directly from the Electoral Register	588		2,405	
Supplementary sample of young persons	21		100	
Total Sample	609		2,505	
Ineligible*	8		32	
Total eligible sample	601		2,473	

RESPONSE ACHIEVED:	<i>Highlands and Islands</i>		<i>Main Part of Scotland</i>	
	No.	%	No.	%
<i>No interview obtained</i>				
Refused	19	3	138	6
Had moved	21	3	90	4
Out all calls	-		5	
Dead	9	4	22	2
Sick	-		8	
Temporarily away	18		27	
		10		12
<i>Interview completed but no examination obtained</i>				
Refused examination outright	35	6	135	5
Agreed initially, but later refused or not contacted	15	3	69	3
		9		8
<i>Interview and examination both completed</i>	484	81	1,979	80
	601	100	2,473	100

*When contacted, these people were found to be living at institutional addresses, not in private households.

patience. The time taken varied with the individual but was generally between half an hour and three-quarters of an hour.

2.8 A Dental Examination in the Home

In a national inquiry about the dental health of adults which is to include a dental examination the first question to be settled is where the examination is to be carried out. Experience has shown that the highest response can be achieved when the least effort is required from the public. Consequently the highest level of co-operation will result if you take the dentist to the person. There are two main ways of doing this, either by carrying out the examination in the person's home or by taking a mobile clinic to the vicinity. On a national inquiry the latter would either involve the organisation of a large amount of equipment to be utilized for a short time, or a very long period of fieldwork. An additional disadvantage of mobile vans is that they are very conspicuous and would have drawn undue attention to the survey*. For the Scottish survey it was decided that it was best to follow the same method as used in the earlier England and Wales study and to carry out the dental examinations in the home.

The survey dental examination had to be designed taking account of all the limitations that the home situation imposed. Firstly the equipment would have to be portable. This meant that the examinations could not include X-rays, that the lighting conditions would be much poorer than in a surgery or clinic and that the seating arrangements would be less than ideal. All the dentists were issued with battery-operated headlamps, slightly modified from the model used for the England and Wales survey, in an attempt to standardise the lighting conditions. The person who was to be examined was asked to sit in an upright (dining room type) chair if possible to standardise roughly the position for the examination. There was some discussion as to whether or not portable headrests should be used, but the variety of opinions expressed made us decide to the contrary. It was true however that the upright chair position caused some discomfort to the people who were examined and to the dental examiners.

The instruments which were used by the dentists consisted of mirror, probes and measuring devices, all of which were easily portable. The dentist had several sets of instruments and these were stored in a solution of alcoholic Hibitane before use. Considerable attention was given to practising with the equipment so that no unfortunate leakage of the solution would occur in the person's home. Similarly much effort was put into arranging a system of hand cleansing for the dentist. When we tested the examination technique at the pilot stage it became quite obvious that in general it was too great an intrusion for the dentist to use the sink or hand basin. The dentists were therefore issued with sponges and Savlon solution and towels so that they were entirely self sufficient in their equipment.

In the home examination situation the dentist is requesting the co-operation of the person to be examined on that person's own home ground. This is quite a different

* Of course a mobile clinic does not suffer from the limitations of the home with respect to lighting and seating, but this is countered by the fact that it is more like a dentist's surgery and its use might have led to some loss of response among those people who were apprehensive of going to the dentist.

situation from the surgery or clinic. In order to help the dentist adjust to this new situation we arranged the procedure so that the interviewer returned with the dentist, introduced him to the person she had already interviewed and then acted as dental recorder during the examination.

2.9 Content of the Dental Examination

The home situation affected more than just the practical arrangements for the examination. The dental criteria to be used had to be defined bearing in mind the difficulties of the home situation. Other factors also implied limitations on the content of the examination. Perhaps the most important restrictions were that the survey team of dentists was going to be relatively large, about 25-30 dentists; the time available for training was going to be relatively short, at most one week; and the definitions had to be learned, applied and called out in code, in as standard a way as possible. All these constraints in combination necessitated simplicity wherever possible. The detailed list of dental criteria has been reproduced in the appendix.

The dentist was told by the interviewer before he arrived at the person's home whether the person had natural teeth and no dentures, both natural teeth and dentures, or no natural teeth. This enabled the dentist to select the appropriate instruments before leaving his car.

If the person had natural teeth and no dentures the dentist firstly established which teeth were present. Then, for each surface of each tooth, he recorded whether it was sound, decayed or filled. For fillings he said what material was involved. To preserve comparability with the earlier survey in England and Wales, a blunt probe was used to detect decay thus omitting the early signs of decay such as sticky fissures.

Except for the method of recording the information* the Scottish survey was directly comparable with the England and Wales survey in the techniques used to estimate the condition of teeth with respect to decay, extraction and conservation.

In contrast to this, an attempt was made in the part of the examination that dealt with oral hygiene and the condition of the gums to improve on the technique used in the earlier survey.

For the assessment of debris and calculus six tooth positions around the mouth were nominated for inspection. If the tooth in that position was missing there was a system of substitution. There was a limit to this substitution however, and beyond this limit no information was recorded.

In addition to debris and calculus there were three types of information collected about the condition of the gums. Each tooth present was assessed by the dentist as to whether the gums around it were recessed or not, and whether or not in his opinion the tooth needed extraction for periodontal reasons. The dentist also scored each tooth as to the extent of periodontal involvement. He recorded which natural teeth were in occlusion with other natural teeth, and carried out measurements of overjet and overbite.

* The layout of the recording sheet was completely changed.

For people with natural teeth who had never had a denture that was the end of the examination. If the person had a combination of natural teeth and dentures then the dentist continued the examination by inspecting the mouth for signs of any soft tissue and gum disturbance caused by the denture. He then inspected the denture to establish what condition it was in and what material it was made of. If the denture was designed to replace fewer than 14 teeth he drew a sketch of the design showing which teeth were replaced and where the supports of the denture came into contact with natural teeth. He then examined the fit of the denture in the person's mouth. Defining how to assess the fit of dentures in a way that was simple enough for inclusion in the examination was one of the most difficult definition problems we faced.

If the person to be examined had said that he or she had no natural teeth the dentist would first confirm this and carry out that part of the examination relating to dentures.

The major change in technique for the Scottish survey examination was, as mentioned earlier, the way that assessments were made about the gum conditions. It was felt that there was no conclusive proof that the earlier study had used a method which should be repeated, and that a different approach might be more valuable. Gum condition measurements are notoriously difficult to obtain in a systematic and standardised form and we still have some reservations about this part of the examination.

2.10 Recruitment and Training of the Dental Examiners

The recruitment and training of the dental examiners was the responsibility of the small team of dentists nominated by the three Scottish Dental Schools. A circular was issued to dentists asking for applications of those interested, and a team of 24 with 4 reserves was selected. The dentists came from general practice, the school dental service, the hospital service and the universities. Selection of the team was based on age, experience, which area the applicant could work in, and where the survey sample was located. Among the team there was a considerable range of experience.

All dental examiners were required to attend a week's training course, and three weeks before this was due to take place each dentist was sent a detailed set of documents about the survey arrangements. A written explanation of the criteria for the examination was included among these documents.

By the time the training course started the examiners were expected to be familiar with the instructions, but from previous experience we knew that the week of instruction and practice was the most valuable part of the training. It is often not fully appreciated until actually demonstrated that this vitally important standardisation of examination technique is so difficult to achieve.

Initially the training took the form of dividing the examination into topics. For each of the topics a short talk or demonstration was given by one of the dental organisers, and then the dental examiners practised on volunteer subjects. In these practice sessions the dentists worked in pairs, one acting as recorder for the other.

While these practice sessions were in progress the record sheets were collected and compared so that variations in diagnosis could be discussed. In these early practice sessions many of the discrepancies were the result of misunderstandings about the definitions rather than inability to apply the definitions.

By the middle of the training week the practice sessions included all parts of the examination. The last two days of the training week were spent with the dentists examining volunteer subjects but with the interviewers acting as dental recorders. Because of the numbers involved, half of the dentists carried out this practice with interviewers on the Thursday and the other half on the Friday. These sessions on the last two days formed the basis of our tests of variability between examiners which are discussed in detail in the appendix.

Even at these test sessions, however, the instructors commented on performance if the scoring appeared to be well out of line. It seemed to us that we would rather our fieldwork was done as accurately as possible, than that our test conditions were rigidly upheld.

Throughout the training and calibration sessions the dental examiners carried out their examinations on volunteer subjects, recruited for this study by the dental organisers. In previous studies the practice session subjects were often not very typical of the general population sample that the dentists would see in the fieldwork. An enormous amount of effort went into organising the attendance of these volunteers so that a better cross section could be seen at the training sessions. Although the test results are based on fairly small numbers of subjects seen by the same dentists* the total number of volunteer subjects was something like 150. To organise their attendance was no mean achievement by the dental organisers.

Sections 2.8 - 2.10 have described the dental examination in general terms so that the reader knows the basis of the dental findings presented in the report. The examination technique, training and calibration are discussed in much greater detail in the appendix.

2.11 Supplementary Information from Dental Estimates Board Records

We asked the Scottish Home and Health Department and the Scottish Dental Estimates Board if we could make use of some of the information that is collected during the administrative process of delivering the dental service. We were grateful for their agreement as this enabled us to extend our analysis to a point in time considerably beyond the end of the survey fieldwork.

There were two main issues on which the Estimates Board data could provide extra information. Firstly we wished to compare the details of the last course of treatment prior to the interview as recorded in the files and as remembered by the person interviewed. This would give us a measure of the reliability of information collected retrospectively. Secondly we could obtain from the records information regarding any treatment which had been obtained by the people in our sample since the time of the survey.

* See appendix.

Although any of the 2717 people interviewed in the survey might have had some form of dental treatment during the subsequent year, only a proportion would in fact have done so. We could not tell in advance who these would be so this would have meant searching the records for all 2717; in fact we reduced the number searched for by excluding the people who had become edentulous some time (five years or more) before the survey, since we were not, for the current purposes, interested in treatment involving the replacement or repair of dentures. Even so the exercise involved searching the records of 1680 people.

We carried out this matching operation in July 1973 so that we could obtain details of any treatment undergone within about a year of the survey while still being able to find a considerable number of records relating to the courses of treatment prior to the survey. Although matching two sets of data always sounds fairly simple it is never as straightforward as anticipated and some of the difficulties that were encountered are described below.

Although the information collected by the Scottish Dental Estimates Board is transferred to computer we asked if we could search through the filed records for our matching exercise since this would cause little disturbance to the normal working of the Board, and in addition previous computer experience suggested that it would probably be quicker than setting up a fairly complicated procedure to be used only once.

In preparation for this search we made out an index card for each person interviewed giving the person's surname, Christian name and date of birth. The index cards were made up to match, as far as possible, the layout that could be found on the forms submitted by dentists for each course of treatment carried out under the National Health Service. Once the person had been located the relevant information from the treatment sheets was transcribed.

The success and limitations of the search operation were dependent mainly on the filing system of the records. The system is, of course, designed for the ease of administering the payment of dentists, not for research, and it is only by a full appreciation of that system that one is able to assess whether the records can provide the information required.

Once the information contained on the treatment forms is transferred to computer, the forms themselves are filed away (by the patient's surname, Christian name and date of birth, in that order). But in order to match various pieces of information about any one person by computer, the phonetic form of the name (rather than one of its several different spellings) is used, and the forms are filed away using this same phonetic system. For example the surname Hendrie would be filed with Hendry, Henric and Henrik and Henry. Only the first six letters of the surname and the first four of the Christian name are taken into account in the filing*, for example the surnames Roberts and Robertson would be filed together. Matching our sample with the filed forms was thus not particularly straightforward.

The forms relating to courses of treatment are kept in envelopes, any one person's forms being kept in the same envelope with the most recent treatment at the front.

* Only the first six letters of the surname and the first four of the Christian name are punched and put onto the computer.

Emergency treatments however are filed separately from the main records, by month of payment (within month of payment, the filing is as above, by surname, Christian name and date of birth).

If all the treatment forms were kept indefinitely the records system would soon become unmanageable in terms of sheer volume, so to keep the volume of records at a minimum the Estimates Board staff operate a "weeding" system whereby all treatment forms before a certain date are taken out of their envelopes and destroyed. At the time when we decided to locate our informants in the records, ie mid-July 1973, "weeding" had just commenced on July 1st for the year 1st April 1971 to 31st March 1972 inclusive. The treatment form for any course of treatment in this period would be destroyed. This process takes in general a whole year to complete, so the minimum length of time that a treatment form can remain in the records is 15 months (in theory the maximum length of time is 3 years 3 months). This "weeding" process is, however, of secondary importance to the main work of the Estimates Board staff, and the actual length of time for which a form is kept varies, depending upon availability of staff as well as upon other factors such as the patient's surname and the date of the treatment.

Where a treatment involves the provision of a new denture or dentures, this information is transferred to the cover of that person's envelope. If, when a treatment sheet is taken out to be destroyed, no other sheet remains then the envelope is also withdrawn unless it has any denture information written on it. In this latter case, the envelope itself is kept for 5 years from when the dentures were provided (any subsequent treatment sheets for this person are of course inserted in this same envelope).

We could not, of course, expect to find any records at the Dental Estimates Board for any private dental treatment or dental treatment carried out in hospital, but apart from this unavoidable loss of information there proved to be other reasons which prevented us from locating some of the treatment forms which we might otherwise have expected to find.

Because of the phonetic filing and the number of common names, the surname, Christian name and date of birth were all required in order to locate our informants in the records. There were a very small number of people who, at the interview, had not given us their full date of birth*, and we were not able to locate them.

Emergency treatments were, as stated above, filed in a somewhat different way from the main records, and so in these cases where people attended the dentist for relief of pain the treatment sheets would not be found in the main records. To locate the relevant treatment sheets for emergency treatments would have involved a phenomenally large amount of searching: for example if we wanted to find all emergency treatments carried out on our sample in the year previous to, and the year subsequent to, the survey, we would have to search through 24 sets of records relating to the relevant months. In view of the work involved we decided to omit emergency treatments from our search and to confine the exercise to courses of treatment. Fortunately, all major changes in dental status, such as the provision of dentures, or full clearance and the provision of full dentures, occur within a

* An incomplete date of birth, for instance the year only, was not sufficient for us to locate the person, as the number of people with the same name was in general large.

course of treatment and therefore this restriction did not exclude any information about major dental treatment.

There were, finally, a number of possible reasons why treatment sheets which we would otherwise have expected to find were not found. The most important of these is in cases where there is a change of surname (the most common case of this, of course, is where a woman marries). Although the Estimates Board receives a periodic list of these changes from the Registrar General, and re-files the relevant forms under the new name, no systematic record of the changes is kept. Thus it is likely that a number of our female informants whom we would have expected to locate, were not located because they married in the year subsequent to the interview. There were also various reasons why, at any one time, certain treatment forms were out of the main filing system, for instance because a treatment requires prior approval (in which case past treatment forms are temporarily removed for reference), or because there has been a query regarding some treatment. The number of forms out of the records at any one time constitutes a very small proportion of the total, and it is unlikely that this appreciably affected the success with which we located informants.

There were some aspects of our original scheme which proved in the event to be unrealistic and over-ambitious, and the range of comparative data which finally emerged was reduced to small well-defined groups, for example people who had been fitted with dentures for the first time, or those who had become edentulous. Within these small groups the use of survey data and Dental Estimates Board data in combination proved to be very useful indeed and certainly made the exercise worthwhile. The work load involved in obtaining the results was, however, very much greater than that implied by the size of the groups for which detailed results have been given.

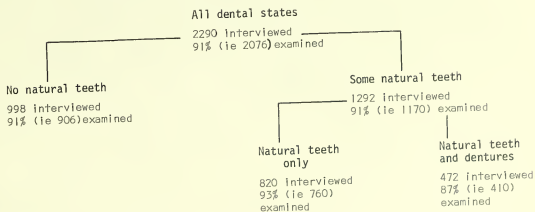
3 Non-Response at the Dental Examination Stage

The greatest problems of estimating how much effect non-response has had in a voluntary survey stem from the fact that one usually obtains very little information about those people who for one reason or another do not co-operate in the inquiry. Although in this survey we do not know the characteristics of those who were not interviewed, we do have information from the interview for those who were interviewed but then were not dentally examined. Since much of the analysis in the report uses interview and dental examination information in conjunction those who were interviewed but not examined are usually excluded, but before confining our major analyses to those for whom we have complete information we investigate the extent to which the people who were not dentally examined differed from those who were.

3.1 Differences Between Those Examined and Those Not Examined

We look firstly at dental status (Figure 3.1). Among those with no natural teeth 91% were examined, and among those who still had some natural teeth the same proportion (91%) were examined; but if the latter group is sub-divided into those who had a denture and those who did not, we find that 87% of dentate adults with dentures were examined compared to 93% of those who had no denture experience. Thus when we confine our analyses to people in the sample who were both interviewed and examined the people who have both natural teeth and dentures are slightly under-represented.

Figure 3.1
NUMBERS OF PEOPLE INTERVIEWED AND PROPORTION EXAMINED



(Re-weighted figures)

Since most of the survey results are given separately according to the major classification of dental status, Tables 3.1 and 3.2 present the effect of non-response at the examination separately for the edentulous and for those who had some natural teeth. The differences between those who were examined and those who were not are fairly small. Whatever the dental status, there was little difference between the proportion of men and women examined, social class did not make very much difference, and neither did age except that the youngest adults were slightly more likely to be examined and the oldest slightly less likely to be examined.

Among the edentulous there were a few people who said that they had never been fitted with a full set of dentures, and among these a relatively low proportion were examined (77%). Perhaps these people more than any others thought that a dental examination would contribute very little to the survey (in such cases the examination only involved the dentist in checking to see if in fact any teeth or roots were present in the mouth). The great majority of edentulous persons said that when they had their natural teeth they only went to the dentist when having trouble, but these people were no less likely to be examined than those who said they had been in the habit of going for a regular or occasional check-up.

During the interview we asked some questions which would give us an indication of the amount of restorative treatment the person had had when he or she still had some natural teeth. Neither having had teeth filled nor having had an X-ray taken made any significant difference to whether a person was examined. We asked informants about their current set of dentures (their fit, their age, and so on) and about any past sets which they may have had. Some people's current set of dentures were new and had only just been acquired at the time of the survey, while others had had their dentures many years. There were no significant differences in the proportion examined, according to the age of the dentures, and no differences according to whether or not the person said that he worried about being seen without his dentures.

Among people with some natural teeth there was no evidence that having had fillings or having had an X-ray made a person any more or less likely to have the dental examination. Those who said they went to the dentist for a regular check-up were slightly more likely to be examined than those who said they only went when they were having trouble with their teeth. The length of time since the person's last visit to the dentist had some influence on whether that person was examined or not: the longer ago the last visit, the less likely that person was to be examined. We thought that those who were currently having trouble might not be as willing to be examined as others, but in some respects this proved not to be the case; proportionately more of those who said they got twinges of toothache when eating sweets, and more of those who said their gums had bled in the week prior to the interview, were examined. Perhaps they welcomed the opportunity of having a dentist looking at their mouths. We had asked during the interview how many teeth the informant thought would need treating if he or she went to the dentist, and a comparatively low proportion of the people who said they thought they needed more than 5 teeth treated were examined.

We asked those people living in the Highlands and Islands whether they had problems in getting to the dentist, and thought that those who did have problems might welcome the opportunity of a home examination and be more likely to be examined. In fact similar proportions of those who did and those who did not have problems getting to the dentist were examined.

The differences between those people who were both interviewed and examined and those who were only interviewed are fairly small, and the number of people who were interviewed only was also fairly small. We conclude therefore that in those analyses where we exclude those who were not examined this does not materially affect the representative nature of the sample. The interview information indicated that the people who were not examined were if anything a little worse dentally than those who were examined. It is probably the case that those people for whom we obtained no information at all also had a slight tendency to be dentally worse off. This means that due to our non-response we may be slightly understating the overall dental situation.

Table 3.1

PROPORTION OF THOSE WITH NO NATURAL TEETH WHO WERE BOTH INTERVIEWED AND EXAMINED

	Proportion Interviewed and Examined	(BASE)
a) All	91%	(998)
b) Sex:		
Males	93%	(417)
Females	89%	(581)
c) Age:		
16-34	97%	(60)
35-44	90%	(143)
45-54	93%	(214)
55-64	92%	(264)
65-74	89%	(230)
75 and over	86%	(85)
d) Household Social Class:		
I, II and III non-manual	91%	(205)
III manual	91%	(356)
IV and V	94%	(320)
e) Provision of dentures:		
Has (had) a full set of dentures	91%	(963)
Has never had a full set of dentures	77%	(35)
f) Attendance when had natural teeth:		
Regular check-up	91%	(95)
Occasional check-up	94%	(75)
Attended only when had trouble	90%	(828)
g) Unpleasant experiences at the dentist:		
As a child:- unpleasant experience	93%	(191)
not	92%	(376)
never went as a child	89%	(414)
As an adult:- unpleasant experience	90%	(262)
not	91%	(734)
h) Experience of restorative dentistry:		
Had some teeth filled	91%	(461)
Did not	90%	(537)
Had X-ray of natural teeth	94%	(120)
Did not	90%	(878)
i) Age of denture:		
1 year or less	88%	(89)
More than 1 year - up to and including 3 years	92%	(166)
More than 3 years - up to and including 10 years	94%	(364)
More than 10 years - up to and including 20 years	91%	(184)
More than 20 years	86%	(160)
j) Worries about being seen without dentures:		
Very much	88%	(149)
To some extent	91%	(123)
Not at all	92%	(691)

(Base numbers re-weighted)

Table 3.2

PROPORTION OF THOSE WITH SOME NATURAL TEETH WHO WERE BOTH INTERVIEWED AND EXAMINED

	Proportion Interviewed and Examined	(BASE)
a) All	91%	(1292)
b) Sex:		
Males	92%	(653)
Females	89%	(639)
c) Age:		
16-24	94%	(405)
25-34	92%	(324)
35-44	90%	(262)
45-54	85%	(180)
55 and over	87%	(120)
d) Household Social Class:		
I, II and III non-manual	90%	(408)
III manual	92%	(513)
IV and V	91%	(281)
e) Attendance as a child:		
Went to dentist	91%	(1094)
Never went to dentist*	86%	(198)
f) Current attendance:		
Regular check-up	93%	(419)
Occasional check-up	92%	(171)
Attends only when has trouble.	89%	(698)
g) Unpleasant experiences at the dentist:		
As a child:- unpleasant experience	92%	(438)
not	91%	(656)
never went as a child*	86%	(198)
As an adult:- unpleasant experience	93%	(339)
not	90%	(950)
h) Experience of restorative dentistry:		
Has fillings in one or both jaws	92%	(952)
Had fillings but has none now	86%	(136)
Never had fillings	89%	(201)
Had X-ray of natural teeth	93%	(447)
Did not	90%	(845)
i) Informant's assessment of number of teeth needing treatment:		
None	91%	(529)
1-2	91%	(439)
3-5	93%	(186)
More than 5	84%	(121)
j) How long since last visit to dentist:		
Up to and including 6 months	93%	(446)
More than 6 months - up to and including 1 year	94%	(314)
More than 1 year - up to and including 3 years	87%	(279)
More than 3 years	86%	(249)

(Base numbers re-weighted)

* Includes those who were seen but not treated by a school dentist

3.2 Sample Size With and Without the Non-Examined

The analysis of the survey results is sometimes undertaken for people of a particular dental status, is usually confined to those people who were both interviewed and examined, and for the most part describes Scotland as a whole and therefore involves a process of re-weighting. In order that the reader should be able to identify variations in sample size, the effect of re-weighting and the exclusion of those who were interviewed but not examined we give in Table 3.3 the detailed breakdown of the numbers which form the major groups used in the analysis.

Table 3.3

SAMPLE SIZES FOR THE TWO PARTS OF SCOTLAND AND SCOTLAND RE-WEIGHTED

	Main part of Scotland			Highlands and Islands			Scotland* (re-weighted)		
	Inter- viewed and exam- ined	Inter- viewed but not exam- ined	Total inter- viewed	Inter- viewed and exam- ined	Inter- viewed but not exam- ined	Total inter- viewed	Inter- viewed and exam- ined	Inter- viewed but not exam- ined	Total inter- viewed
Those with natural teeth only	731	58	789	143	11	154	760	60	820
Those with natural teeth who have a denture	390	59	449	100	15	115	410	62	472
Those with no natural teeth	858	87	945	241	24	265	906	92	998
All dental states	1979	204	2183	484	50	534	2076	214	2290

Most of the tables in the report have a series of bases for individual sub-groups and a total base figure. Where those tables use re-weighted figures the individual bases have been re-weighted separately and rounded to their respective whole numbers. Thus in some cases these individual bases do not add up exactly to the total, in which case they differ from it by not more than one.

*As mentioned in Section 2.1 the Highlands and Islands figures have to be down-weighted by a factor of 5 before contributing to the results for the whole of Scotland. For example in Table 3.3 the figure of 760 (those with natural teeth only who were interviewed and examined) for Scotland as a whole is arrived at by the addition $731 + \frac{143}{5} = 759.6$, or 760 to the nearest whole number.

4 Total Tooth Loss Among Scottish Adults

It is felt nowadays that, although few adults escape dental disease completely, modern preventive and restorative methods should make it possible for people to rely on their natural teeth throughout most of their life, and that this should be the aim of the dental service. Consequently the proportion of people in the community who have lost all their natural teeth provides a measure of the extent to which that aim has not yet been achieved.

The Scots have far to go in this respect: for 44% of adults aged 16 and over in Scotland have no remaining natural teeth. This was a higher proportion than in England and Wales as a whole where the 1968 survey showed that 37% were edentulous. The Scottish figure is in fact close to the 45% found in the North of England, the worst region in the England and Wales survey, and far removed from the 28% found for London and the South East. The poor position in Scotland is not confined to the older age groups, and is therefore not an inheritance from the past. Figure 4.1 shows that among adults currently in the age group 25-34 the differences are already evident.

4.1 Total Tooth Loss by Age, Sex and Social Class

We now move on to consider how edentulousness within Scotland varies not only with age, but with sex and social class. Table 4.1 shows total tooth loss by age in detail and also gives the results for males and females separately. As one might expect, the variation with age is very marked indeed, the proportion of adults in

Table 4.1
TOTAL TOOTH LOSS BY AGE AND SEX

Present age	Adults in Scotland		
	Proportion edentulous		
	Male	Female	All
16-24	2% (203)	3% (213)	2% (417)
25-34	12% (163)	15% (192)	13% (374)
35-44	26% (180)	43% (225)	35% (405)
45-54	52% (204)	57% (190)	54% (394)
55-64	74% (158)	81% (181)	78% (339)
65-74	86% (111)	86% (155)	86% (265)
75 and over	63% (30)	92% (65)	89% (95)
All ages	39% (1070)*	48% (1220)	44% (2290)*

Base numbers (re-weighted) are given in brackets.

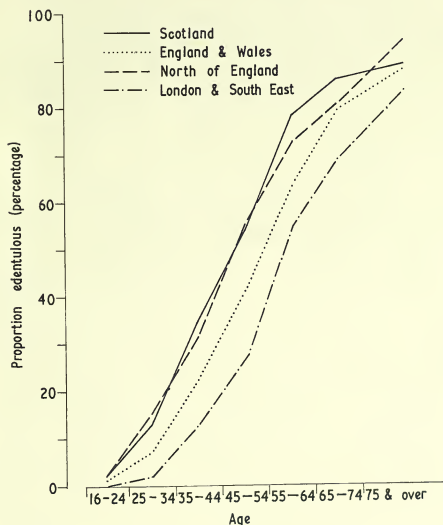
*Includes two for whom age was unknown.

Scotland with no natural teeth rising from 2% among those aged 16-24 to 89% among those aged 75 and over. Proportionately more women had lost all their natural teeth than men (48% compared to 39%), and this difference between the sexes was substantial and at its greatest in the age group 35-44. In this age group 43% of women were edentulous compared to only 26% of men. The way the gap between the sexes suddenly widens for this age group and then closes up again for older age groups suggests the possibility of something occurring for the women which hastens total tooth loss. A similar widening of the gap between the sexes was found for this age group in England and Wales.

Similar variations of total tooth loss with age were found in England and Wales, and Figure 4.1 compares the results diagrammatically for Scotland, England and Wales, the North of England and London and the South East. The levels of total tooth loss in Scotland are much closer, age for age, to those in the North of England than to those in England and Wales as a whole.

Figure 4.1

TOTAL TOOTH LOSS IN SCOTLAND AND ENGLAND AND WALES, FOR DIFFERENT AGES



We also examined variations in total tooth loss for people of different social classes. In the survey in England and Wales, Household social class was grouped into three major classes, as the numbers in the individual social classes were too small for detailed analysis: the professional, managerial and skilled non-manual classes were grouped together, as were the semi-skilled and unskilled categories. In order to be able to make direct comparisons we have grouped the Scottish figures similarly. Initially we give the levels of total tooth loss for the social classes separately, but in subsequent tables we have used the above grouping. Those people in households where the Head of Household was a housewife, a student, unemployed or unclassifiable (and therefore not one of the three major groups) are not shown as separate groups in subsequent tables but are included in the column totals.

Table 4.2
TOTAL TOOTH LOSS AND HOUSEHOLD SOCIAL CLASS

Household Social Class		Adults in Scotland	
		Proportion edentulous	
Professional, managerial and skilled non-manual	Social class I	33%	10% (85)
	Social class II		35% (316)
	Social class III non-manual		40% (214)
Skilled manual	Social class III manual	41%	(869)
Semi-skilled and unskilled	Social class IV non-manual	53%	52% (96)
	Social class IV manual		52% (319)
	Social class V		55% (187)
	Housewife	62%	(161)
	Others*	38%	(44)
All Social Classes		44%	(2290)

Base numbers (re-weighted) are given in brackets.

*Students, unemployed and unclassifiable.

Table 4.2 shows that total tooth loss varies considerably with social class. The highest levels of total tooth loss occur in the semi-skilled and unskilled classes, this group having 53% edentulous overall; this social class group contrasts with the professional, managerial and skilled non-manual group in which 33% are edentulous. The skilled manual group has an intermediate level of total tooth loss of 41%. We see that the "housewife" category has a very high level of total tooth loss of 62%. This is because many of the households in which the Head of the Household has no classifiable occupation other than being the housewife are made up of elderly widows living alone; in these cases the Head of the Household and the informant are the same person so the 62% reflects to a great extent the (high) level of total tooth loss among elderly women.

We give in Table 4.3 the comparable figures for total tooth loss in the different social class groups for England and Wales, the North of England and London and the South East. In England and Wales as a whole, the levels of total tooth loss in the three main social class groups are consistently lower than in Scotland. In terms

of the social class groups, Scotland would again appear to be more like the North of England than like England and Wales as a whole, with respect to total tooth loss.

Table 4.3
TOTAL TOOTH LOSS AND HOUSEHOLD SOCIAL CLASS

Household Social Class	Adults in Great Britain			
	Proportion edentulous			
	Scotland	England and Wales	The North of England	London and the South East
I, II and III non-manual	33% (614)	27% (950)	29% (241)	21% (387)
III manual	41% (869)	34% (1074)	43% (335)	26% (346)
IV non-manual, IV manual and V	53% (601)	46% (672)	57% (218)	37% (202)
All* Social Classes	44% (2290)	37% (2932)	45% (864)	28% (1008)

Base numbers are given in brackets.

Base numbers for Scotland re-weighted.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

We have seen that age and sex also make considerable differences to total tooth loss and we now examine, in Table 4.4, the resulting levels of total tooth loss for different social classes, sexes and ages.

Table 4.4
TOTAL TOOTH LOSS BY HOUSEHOLD SOCIAL CLASS, SEX AND AGE

Household Social Class		Adults in Scotland			
		Proportion edentulous			
		Present age			All ages
		16-34	35-54	55 and over	
I, II and III non-manual	Male	3% (87)	23% (93)	66% (66)	27% (245)
	Female	6% (122)	37% (137)	73% (110)	37% (369)
	Both	4% (209)	31% (229)	70% (176)	33% (614)
III manual	Male	6% (185)	43% (159)	85% (123)	40% (469*)
	Female	11% (163)	50% (155)	92% (82)	42% (401)
	Both	8% (348)	46% (313)	88% (205)	41% (869*)
IV non-manual, IV manual and V	Male	12% (95)	50% (113)	85% (98)	50% (307)
	Female	11% (91)	64% (102)	92% (101)	47% (294)
	Both	12% (186)	56% (215)	88% (199)	53% (601)
All* Social Classes	Male	7% (385)	40% (384)	80% (298)	39% (1070*)
	Female	9% (405)	49% (415)	85% (401)	48% (1220)
	Both	8% (791)	45% (799)	83% (699)	44% (2290*)

Base numbers (re-weighted) are given in brackets.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

*Includes two for whom age was unknown.

The association which social class has with total tooth loss occurs whatever age group we look at. Among those aged 16-34 the proportion edentulous rises from 4% in the highest social class group to 12% in the lowest. Considering that these two proportions are for people of similar ages, the difference between them is very large indeed. Again, there is a large social class difference in the age group 35-54, in which the proportion with no natural teeth rises from 31% to 56%. In the oldest age group, 55 and over, there is a high overall level of total tooth loss of 83%, but even here there is a social class difference, the highest social class group having 70% edentulous compared with 88% in the lowest (although among these adults those in the intermediate social class had the same level of total tooth loss as those in the lowest social class group).

Figure 4.2 gives a diagrammatic summary of the levels of total tooth loss in Scotland by age and social class, and the comparable figures for England and Wales and the North of England are given in Figure 4.3

The results show that in Scotland, as in England and Wales, total tooth loss varies considerably with age, sex and social class. In all comparisons of people with similar characteristics, however, Scotland compared unfavourably with England and Wales. The level of total tooth loss in Scotland was, in fact, much closer to the level found in the North of England, which was the least favoured of the survey regions in the England and Wales study.

Figure 4.2

TOTAL TOOTH LOSS IN SCOTLAND BY AGE AND SOCIAL CLASS

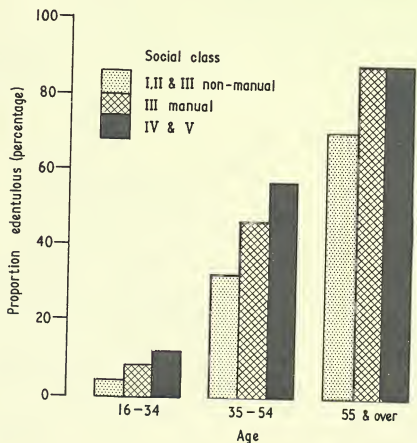
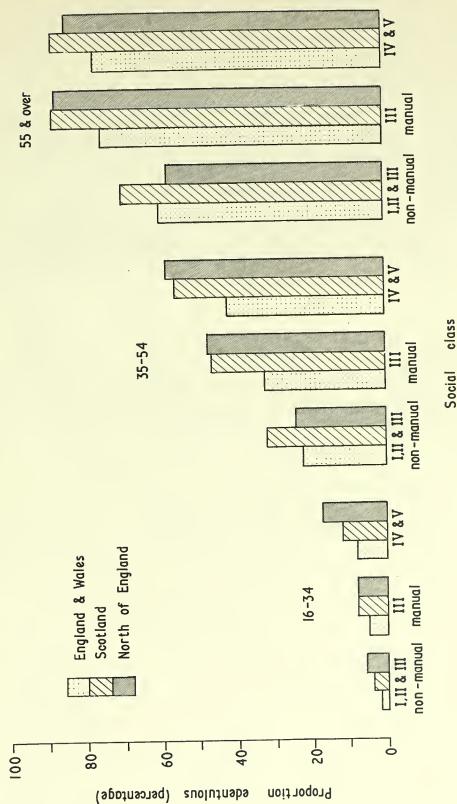


Figure 4.3

TOTAL TOOTH LOSS IN SCOTLAND, ENGLAND AND WALES AND THE NORTH OF ENGLAND.
BY AGE AND SOCIAL CLASS



4.2 Total Tooth Loss in Early Life

The prevalence of total tooth loss at an early age is a more specific way of looking at patterns of tooth loss. It is a useful method as it provides a measure of whether or not the situation is changing over time, for we can look at different age groups in the population and compare the proportions of those losing all their teeth at a young age, twenty years or so ago and currently.

We rely for this analysis on when people said they lost the last of their natural teeth. This is of course dependent on memory and many of the people who were edentulous had lost their teeth more than twenty years before the survey took place. Our piloting work had suggested, however, that the occasion of total tooth loss was a fairly memorable event for most people and that by building up the detail of what happened we obtained fairly reliable information. Nonetheless we have thought it best to restrict this analysis to people under the age of sixty-five, since for older people a considerable effort of memory would be needed.

When this analysis was carried out for England and Wales a decision had to be made as to what age was to be taken as the border line. The age selected was thirty. The reasons for choosing thirty were that the proportion who lost all their teeth at any younger age was very small indeed, and we did not want to increase the age limit since the younger the limit we used the greater was the number of age groups that could be compared. For the Scottish survey we initially used the same border line so that comparisons could be made with England and Wales and then the analysis was extended a little further.

When we compare total tooth loss by the age of thirty for people of different ages, then implicit in this analysis is a comparison over time. For instance a person now aged sixty who lost all his teeth by the age of thirty must have lost those teeth at least thirty years ago, thus reflecting dental attitudes and behaviour at that time; a person now aged thirty who has lost all his natural teeth reflects the dental situation among young adults at the present time.

Table 4.5 gives total tooth loss before the age of thirty in Scotland, England and Wales, the North of England and London and the South East.

Table 4.5
TOTAL TOOTH LOSS BEFORE THE AGE OF THIRTY

Present age	Adults in Great Britain			
	Proportion edentulous before thirty			
	Scotland	England and Wales	The North of England	London and the South East
55-64	20% (339)	11% (494)	15% (150)	6% (159)
45-54	16% (394)	8% (475)	13% (139)	4% (173)
35-44	15% (405)	8% (550)	13% (159)	3% (191)
30-34	15% (169)	5% (260)	8% (72)	2% (92)

Base numbers in brackets.

Base numbers for Scotland re-weighted.

Although there would appear from the figures to have been some improvement in total tooth loss before the age of thirty in Scotland, we would need to have a considerably larger sample to demonstrate this conclusively. But since in England and Wales

there has been an improvement over time, it is likely that the Scottish figures do represent an improvement between the oldest and the youngest people. Although there has most likely been some improvement, total tooth loss among the young in Scotland is currently still high; even among the youngest group of people in this analysis, ie those aged 30-34, just over one in seven (15%) were edentulous by the time they were thirty.

In England and Wales the proportion of people losing all their teeth before the age of thirty is considerably less than in Scotland, whatever age we consider. If we compare Scotland with London and the South East, the differences are very large indeed, although the North of England is much closer to Scotland in the proportion of people edentulous by thirty. The England and Wales survey was, of course, carried out four years before the Scottish survey, and so the Scottish data will include any improvement in the dental situation which there has been over those four years.

In Table 4.6 we give total tooth loss before the age of thirty in Scotland, for males and females separately. Total tooth loss before the age of thirty is generally similar for men and for women, the only difference being in the age group 35-44, where fewer men were edentulous before thirty than women. It seems likely that the improvement over the years which we mentioned above has occurred for men and for women.

Table 4.6
TOTAL TOOTH LOSS BEFORE THE AGE OF THIRTY FOR DIFFERENT SEXES

Present age	Adults in Scotland		
	Proportion edentulous before thirty		
	Male	Female	All
55-64	19% (158)	20% (181)	20% (339)
45-54	14% (204)	18% (190)	16% (394)
35-44	9% (180)	19% (225)	15% (405)
30-34	18% (85)	12% (85)	15% (169)

Base numbers (re-weighted) in brackets.

In the earlier England and Wales survey we could not take our age limit any lower than thirty because of the small proportion of adults who had lost all their natural teeth by that age. In Scotland, however, considerably more people had lost their teeth in early life and we could lower the age limit by another five years, and look at total tooth loss by the age of twenty-five. The results are given in Table 4.7.

As we would expect, total tooth loss is much less common before the age of twenty-five than before the age of thirty. Total tooth loss at this earlier age has shown a significant improvement with time, the proportion of adults becoming edentulous before twenty-five having fallen from 11% among those now aged 55-64 to 5% among those now aged 25-29. This improvement is due mostly to an improvement for men. If we compare the proportion of people who lost their teeth before the age of twenty-five in Scotland with the proportion who lost their teeth before the age of thirty in England and Wales we find the levels are rather similar, despite the difference in age and the fact that the English study took place in 1968. Thus again we have some indication that Scotland, although improving, is in a less favourable situation than England and Wales.

Table 4.7

TOTAL TOOTH LOSS BEFORE THE AGE OF TWENTY-FIVE FOR DIFFERENT SEXES

Present age	Adults in Scotland		
	Proportion edentulous before twenty-five		
	Male	Female	All
55-64	13% (158)	9% (181)	11% (339)
45-54	7% (204)	11% (190)	9% (394)
35-44	4% (180)	9% (225)	7% (405)
30-34	6% (85)	7% (85)	6% (169)
25-29	3% (98)	7% (107)	5% (205)

Base numbers re-weighted.

Perhaps the most striking result of the survey in Scotland is the high prevalence of total tooth loss in early life. Even among people currently aged 25-29, one in twenty (5%) had lost all their natural teeth before the age of twenty-five. This phenomenon is of particular interest when elsewhere the amount of early total tooth loss is so much lower.

5 Adults With Some Natural Teeth

Dental health is a result of the interaction of two forces - dental disease and dental treatment. The treatment is, in turn, a result of the interaction of two people - the dentist and the patient. A dentist cannot treat a person who does not present himself for treatment; and once in the chair the type of treatment received is influenced by several factors - the patient's current dental health, what kind of treatment is preferred by that patient, and what treatment is thought best by the dentist. For most people this complicated combination of forces had been working for many years, and what we found in the dental examination was the result of these interactions. To give us some indication of the interactions that had contributed we attempted in the interview to establish a history of the person's dental habits and attitudes.

In the previous chapter we saw that for 44% of adults in Scotland the interactions of these dental forces had, by the time of the survey, resulted in them losing all their natural teeth. This chapter and Chapter 6 deal with the dental condition of the 56% of adults who still retain some of their natural teeth. Within this group the dental condition of different individuals varies very greatly, ranging from those who have lost only one or two natural teeth to those who have only a few natural teeth left in their mouth. At the same time one can distinguish two sets of people: those who rely entirely on natural teeth, and those who have had some teeth replaced by a denture (37% of those with some natural teeth had been fitted with dentures). These partially-dentured people range from those with a denture replacing one or two upper front teeth to those with a full upper denture and a partial lower denture.

In this chapter we shall confine ourselves to the condition of the natural teeth, leaving the partial dentures themselves to a later chapter. As well as establishing the dental condition of the natural teeth we shall investigate how this is related to one particular aspect of dental behaviour, that is attendance at the dentist. Since we shall be using information from both the interview and the dental examination we have had to exclude from the analyses those people who were interviewed but not examined*. We start by looking at the range of dental conditions found among adults with some natural teeth.

* See Chapter 3 for the effect of excluding those people who declined the dental examination.

5.1 The Condition of the Natural Teeth

From the information collected by the dentist we have classified each tooth into one of six main conditions:-

- (i) Missing
- (ii) Unrestorable
- (iii) Decayed (not previously treated)
- (iv) Filled but decayed
- (v) Filled, otherwise sound
- (vi) Sound and untreated

The category "unrestorable" covers all teeth not restorable by routine filling methods. It includes roughly equal numbers of teeth which were only roots and ones which, although some enamel remained, the dentist considered to be unrestorable.

The category "filled, otherwise sound" includes all teeth which were satisfactorily restored, and thereby includes the fairly small number of crowned teeth* as well as those with routine fillings. Also included in this category are the few instances of bridges that were found**. Although this kind of restoration replaces a tooth which is in fact missing it nevertheless represents treatment which is designed to prolong the useful life of natural teeth and negates the need for a denture.

In the following tables we show the variation in the number of teeth in each of these conditions among those people who still had some natural teeth.

By definition a denture replaces missing teeth, and so we would expect the partially-dentured to differ markedly in the numbers of missing teeth they had. For this reason we give in Table 5.1 the distribution of missing teeth separately for those who have dentures and those who do not.

As can be seen in Table 5.1, those people with some natural teeth varied greatly in their levels of tooth loss, from those with a full complement of natural teeth to those with levels approaching total tooth loss. If we compare those with natural teeth only and those with natural teeth and dentures we see that the former group had on average 7.2 missing teeth and the latter group 17.5 missing teeth. This large difference is also exhibited by the distributions themselves. For example the proportions of people with 5 or fewer missing teeth were 36% for people with natural teeth only but 1% for the partially-dentured. Similarly the proportions with 11 or fewer missing teeth were 87% and 21% respectively.

One cannot tell, after the event, why teeth are missing. Some would have been lost because of decay or gum disease, some may have been lost through injury or orthodontic treatment, and some may never have formed at all. In the case of those people with a combination of dentures and natural teeth some teeth may have been lost in the interests of making a reasonably fitting denture. As a measure of decay experience among adults we are therefore limited to those teeth which were present at the time of examination.

* Only 1% of teeth in the category "filled, otherwise sound" were crowned.

** Only 0.1% of teeth in the category "filled, otherwise sound" were in fact bridges.

Table 5.1
THE NUMBER OF MISSING TEETH FOR ADULTS WITH SOME NATURAL TEETH

Number of missing teeth	Adults who rely wholly on natural teeth	Adults with some natural teeth who have a denture	All adults with some natural teeth
	%	%	%
0	1	-	1
1-2	4	*	3
3-5	31	1	21
6-8	32	7	23
9-11	19	13	16
12-14	10	15	12
15-17	3	13	6
18-20	*	10	4
21-23	*	18	6
24-26	-	18	6
27 or more	-	5	2
	100	100	100
Average number of missing teeth	7.2	17.5	10.8
BASES	760	410	1170

Base numbers re-weighted.

* Less than 0.5%.

For these teeth we have two kinds of evidence about decay experience. We have an estimate of current decay and we have information about fillings, that is the restorative treatment of past decay. Initially we consider current decay.

Three of our six categories involve teeth that are currently decayed: those that are unrestorable, those that are decayed and have no sign of previous treatment, and those which have previously been filled but are now decayed. The last two groups consist of teeth which could, with treatment, be restored. When we need to obtain an overall picture of the number of teeth with active decay these three categories are combined. The reader should remember that the teeth in this combined category will vary greatly in the severity of decay, from those with one surface involved to those which are completely broken down with decay. The results for the three decay categories and the combined category are given in Table 5.2.

We see that adults in Scotland had on average 2.4 teeth with decay. Only a third of people had mouths in which there was no current decay, a further third had 1 or 2 decayed teeth, and the other third had 3 or more decayed teeth. Of all decayed teeth about one sixth were unrestorable; and among those decayed teeth considered restorable about two thirds showed no evidence of previous restorative treatment, only a third of restorable teeth having previously been treated.

Table 5.2
THE NUMBER OF DECAYED TEETH FOR ADULTS WITH SOME NATURAL TEETH

Number of teeth in each condition	Adults with some natural teeth			
	Unrestorable teeth	Decayed teeth (not previously treated)	Filled but decayed teeth	Total decayed teeth
	%	%	%	%
0	82	49	67	33
1-2	14	29	27	31
3-5	3	16	6	22
6-8	1	5	*	9
9-11	*	1	*	4
12 or more	*	*	-	1
	100	100	100	100
Average number of teeth in each condition	0.4	1.4	0.6	2.4
BASE	1170			

Base number re-weighted.

* Less than 0.5%.

These figures indicate a considerable amount of treatment need. Even though the dental examination did not measure early decay, two thirds of people with some natural teeth had one or more decayed teeth requiring treatment.

The majority of teeth did not at the time of the survey need treatment for dental decay. On average, adults in Scotland with some natural teeth had 18.8 teeth free from decay. Not all of these teeth, of course, had always been decay-free; Table 5.3 shows that 6.5 of the 18.8 had been decayed, the decay having been treated so that these teeth were sound at the time of the dental examination. If we combine the evidence of restorative treatment which we have in Table 5.3 and the evidence of current decay which we have in Table 5.2, we see that for every 6.5 teeth which had been restored a further 2.4 teeth required treatment.

Perhaps even more interesting than the average number of teeth in these conditions is the variation in the number of teeth in these conditions. Nearly a quarter (23%) of adults who still had some natural teeth had none that were filled, otherwise sound.

In terms of the number of teeth that were sound and untreated it is obvious that very few people in the community have the good fortune to maintain a full and healthy dentition without the intervention of the dentist. Although our sample included adults from the age of sixteen, only 5% of those with some natural teeth had 24 or more teeth that were sound and untreated.

Table 5.3
THE NUMBER OF SOUND TEETH FOR ADULTS
WITH SOME NATURAL TEETH

Number of teeth in each condition	Adults with some natural teeth	
	Filled, otherwise sound teeth	Sound and untreated teeth
	%	%
0	23	1
1-2	11	3
3-5	16	8
6-8	14	19
9-11	13	17
12-14	10	16
15-17	8	13
18-20	4	11
21-23	1	7
24-26	*	4
27 or more	-	1
	100	100
Average number of teeth in each condition	6.5	12.3
BASE	1170	

Base number re-weighted.

* Less than 0.5%.

We have so far examined the tooth conditions separately. It is also of value to look at the various conditions together, and compare their relative importance. Table 5.4 therefore gives in summary, for adults of all ages with some natural teeth, the distributions of the major tooth conditions.

Table 5.4
THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS
FOR ADULTS WITH SOME NATURAL TEETH

Number of teeth in each condition	Adults with some natural teeth			
	Missing teeth	Decayed teeth	Filled, otherwise sound teeth	Sound and untreated teeth
	%	%	%	%
0	1	33	23	1
1-5	24	53	27	11
6-11	39	13	27	35
12-17	18	1	18	30
18 or more	18	-	5	23
	100	100	100	100
Average number of teeth in each condition	10.8	2.4	6.5	12.3
BASE	1170			

Base number re-weighted.

A full complement of natural teeth is 32, and each tooth is, at one point in time, in one and only one of the conditions given. On average, adults of all ages in Scotland who still had some natural teeth had 10.8 that were missing, 2.4 that were decayed, 6.5 filled, otherwise sound, and 12.3 that were sound and untreated.

5.2 The Condition of the Natural Teeth by Age, Sex and Social Class

We found in Chapter 4 that age, sex and social class made substantial differences to total tooth loss. We would also expect these factors to be related to dental health among those people who still have some of their natural teeth, and we next look at the condition of the natural teeth in relation to age, sex and social class. The numbers of dentate adults in the oldest age groups are fairly small and we have therefore grouped together all people aged 55 and over.

We would expect tooth loss to vary with age, and this is shown by Table 5.5, the average number of missing teeth increasing steadily with age from 6.7 among those aged 16-24 to 17.8 among those aged 55 and over. In this oldest age group almost half (48%) of people who still had some natural teeth had lost 18 or more, ie more than half of their natural teeth. We saw in Section 5.1 that only a very small proportion of people had a full complement of 32 teeth; Table 5.5 shows that these are not only young people but that a consistent small proportion of each age group had 32 natural teeth present.

Table 5.5
THE NUMBER OF MISSING TEETH FOR ADULTS OF DIFFERENT AGES

Number of missing teeth	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
0	1	1	1	1	-	1
1-5	40	27	15	4	2	24
6-11	50	45	34	25	19	39
12-17	7	15	26	30	31	18
18 or more	2	12	24	40	48	18
	100	100	100	100	100	100
Average number of missing teeth	6.7	9.5	12.8	15.8	17.8	10.8
BASES	382	297	234	152	104	1170

Base numbers re-weighted.

In Tables 5.6 and 5.7 we give these figures separately for those who rely wholly on natural teeth and those who have a denture, these two groups having been found earlier to differ markedly in the numbers of missing teeth.

Carrying out analyses by the combination of age and dental status results in the numbers in some of the groups being rather small; particularly small are the number of partially-dentured people in the age group 16-24 and the number of people relying wholly on natural teeth in the age group 55 and over. Despite the small numbers the steady increase of tooth loss with age as shown by the average number of missing teeth, can still be seen. Of course, age for age, those people with dentures had considerably more missing teeth than those with no dentures. For example, if we consider the proportions of people having 18 or more missing teeth this was a rare occurrence among adults who rely wholly on natural teeth (even in our oldest age group only 5% had this number of teeth missing), whereas among those who have natural teeth and dentures considerable numbers had this level of tooth loss (even in the youngest age group 18% had lost 18 or more teeth).

Table 5.6
THE NUMBER OF MISSING TEETH FOR ADULTS OF DIFFERENT
AGES WHO RELY WHOLLY ON NATURAL TEETH

Number of missing teeth	Adults who rely wholly on natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
0	1	1	1	2	-	1
1-5	45	39	24	9	6	35
6-11	52	50	50	50	47	51
12-17	2	10	24	37	42	13
18 or more	-	-	1	2	5	*
	100	100	100	100	100	100
Average number of missing teeth	5.9	6.8	8.5	10.4	11.3	7.2
BASES	333	205	126	62	34	760

Base numbers re-weighted.
* Less than 0.5%.

Table 5.7
THE NUMBER OF MISSING TEETH FOR ADULTS OF DIFFERENT
AGES WITH SOME NATURAL TEETH WHO HAVE A DENTURE

Number of missing teeth	Adults with some natural teeth who have a denture					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
0	-	-	-	-	-	-
1-5	7	-	3	-	-	1
6-11	38	35	17	8	6	20
12-17	37	27	30	25	25	28
18 or more	18	38	50	67	69	51
	100	100	100	100	100	100
Average number of missing teeth	12.4	15.4	17.7	19.6	21.0	17.5
BASES	49	92	109	90	70	410

Base numbers re-weighted.

This large variation of tooth loss with age must be borne in mind in the following analyses of the different conditions of the teeth present; the older people had considerably fewer teeth present (and therefore "at risk") than younger people, ie fewer teeth which could be decayed, filled, or sound.

We consider next those teeth which were found to be decayed, and in Table 5.8 give the distribution of decayed teeth for adults of different ages.

Table 5.8
THE NUMBER OF DECAYED TEETH FOR ADULTS OF DIFFERENT AGES

Number of decayed teeth	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
0	29	33	32	41	37	33
1-5	54	49	58	53	53	53
6-11	15	15	9	6	9	13
12 or more	2	3	1	-	1	1
	100	100	100	100	100	100
Average number of decayed teeth	2.7	2.6	2.2	1.7	2.0	2.4
Average number of teeth present (at risk)	25.3	22.5	19.2	16.2	14.2	21.2
BASES	382	297	234	152	104	1170

Base numbers re-weighted.

Decayed teeth were not confined to any particular age group or groups, although the youngest two age groups had, on average, almost one more decayed tooth than the older age groups. The proportion of people who had no currently decayed teeth did increase to some extent with age, but the higher overall average among the younger adults was due mainly to a somewhat higher proportion of them having large numbers of decayed teeth. For example 17% of those aged 16-24 had 6 or more currently decayed teeth compared to only 10% of those aged 35-44.

As discussed earlier our measure of current decay was made up from three categories of decay, that is teeth which are unrestorable, those that are decayed (not previously treated) and those which have been filled but are now also decayed. It is of interest to examine the average number of teeth that are decayed in each age group to see whether the contributions being made by the different kinds of decay are constant for all ages. Table 5.9 shows the average broken down into its component parts.

People in the oldest age group had, on average, slightly more unrestorable teeth, although teeth in this condition were fairly common even among the youngest people. The number of filled teeth which were now decayed was fairly constant for all age groups, but teeth which were decayed, and not yet unrestorable, but which had no signs of previous treatment were somewhat more prevalent among the youngest adults.

Table 5.9
THE AVERAGE NUMBER OF DECAYED TEETH FOR ADULTS OF DIFFERENT AGES

Average number of teeth which were:	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
Unrestorable	0.4	0.5	0.3	0.2	0.7	0.4
Decayed, not previously treated	1.7	1.5	1.3	1.0	0.9	1.4
Filled but decayed	0.6	0.6	0.6	0.5	0.4	0.6
Total decayed teeth	2.7	2.6	2.2	1.7	2.0	2.4
Average number of teeth present (at risk)	25.3	22.5	19.2	16.2	14.2	21.2
BASES	382	297	234	152	104	1170

Base numbers re-weighted.

Table 5.10 gives the distribution of the number of teeth which had at one time been decayed but had been filled so that they were sound at the time of the dental examination.

Table 5.10
THE NUMBER OF FILLED, OTHERWISE SOUND TEETH FOR ADULTS OF DIFFERENT AGES

Number of filled, otherwise sound teeth	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
0	20	20	25	26	39	23
1-5	27	24	30	30	27	27
6-11	32	26	23	30	21	27
12-17	17	24	16	11	11	18
18 or more	4	6	6	3	2	5
	100	100	100	100	100	100
Average number of filled, otherwise sound teeth	6.8	7.5	6.4	5.3	4.5	6.5
Average number of teeth present (at risk)	25.3	22.5	19.2	16.2	14.2	21.2
BASES	382	297	234	152	104	1170

Base numbers re-weighted.

The people in the two oldest age groups, that is those aged 45-54 and those aged 55 and over, had on average 1-2 fewer teeth that were filled, otherwise sound, than other people, but of course these older people had fewer teeth at risk. The large variation in the number of filled, otherwise sound teeth occurred in each age group. Even among the youngest adults one fifth (20%) had no teeth which were filled, otherwise sound; on the other hand just over one fifth (21%) had 12 or more filled teeth.

We saw in Section 5.1 that adults had, on average, 12.3 teeth which had remained free from decay. Table 5.11 shows that the average number of teeth in this condition declines steadily with age, from 15.8 teeth among those aged 16-24, to 7.7 teeth among those aged 55 and over.

Table 5.11
THE NUMBER OF SOUND AND UNTREATED TEETH FOR ADULTS OF
DIFFERENT AGES

Number of sound and untreated teeth	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
0	-	1	1	2	6	1
1-5	3	9	15	17	32	11
6-11	21	36	42	49	40	35
12-17	35	33	31	26	16	30
18 or more	41	21	11	6	6	23
	100	100	100	100	100	100
Average number of sound and untreated teeth	15.8	12.4	10.6	9.2	7.7	12.3
Average number of teeth present (at risk)	25.3	22.5	19.2	16.2	14.2	21.2
BASES	382	297	234	152	104	1170

Base numbers re-weighted.

As we would expect, only a small proportion of people in this oldest age group had a large number of sound and untreated teeth (6% had 18 or more); but even in our youngest age group, considerably less than half the people had 18 or more teeth which had always been decay-free.

In Table 5.12 we summarise and give the average number of teeth in each of the main conditions for adults of different ages.

It must be remembered that, as mentioned above, the number of teeth in different conditions is influenced by the levels of tooth loss. This is particularly pertinent in the older age groups where there are high levels of tooth loss. For instance, those people aged 55 and over would appear to be better off in terms of decayed teeth than those aged 16-24 (these two groups having on average 2.0 and 2.7 decayed teeth respectively). But the people in the oldest age group had only 14 teeth "at risk", compared to 25 among those aged 16-24. If we look at the amount of current decay in terms of the number of teeth at risk, therefore, the oldest people are in a fairly similar position to the youngest.

Table 5.12

THE AVERAGE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS
FOR ADULTS OF DIFFERENT AGES

Average number of teeth which were:	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
Missing	6.7	9.5	12.8	15.8	17.8	10.8
Present (at risk)	25.3	22.5	19.2	16.2	14.2	21.2
	32.0	32.0	32.0	32.0	32.0	32.0
Decayed	2.7	2.6	2.2	1.7	2.0	2.4
Filled*	6.8	7.5	6.4	5.3	4.5	6.5
Sound and untreated	15.8	12.4	10.6	9.2	7.7	12.3
(Teeth at risk)	25.3	22.5	19.2	16.2	14.2	21.2
BASES	382	297	234	152	104	1170

Base numbers re-weighted.

* Filled, otherwise sound.

We saw earlier in Chapter 4 that in terms of total tooth loss women were in a less favourable position than men. In Table 5.13 we give the distributions and averages for the main tooth conditions, for men and women separately.

Table 5.13

THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR MEN AND WOMEN

Number of teeth in each condition	Adults with some natural teeth							
	Missing teeth		Decayed teeth		Filled* teeth		Sound and untreated teeth	
	M	F	M	F	M	F	M	F
	%	%	%	%	%	%	%	%
0	1	1	27	40	28	19	2	1
1-5	25	23	57	49	29	25	8	14
6-11	39	40	15	9	26	28	32	37
12-17	20	15	1	2	13	22	29	33
18 or more	15	21	-	-	4	6	29	15
	100	100	100	100	100	100	100	100
Average number of teeth in each condition	10.4	11.2	2.8	2.1	5.6	7.4	13.2	11.3
BASES	601	569	601	569	601	569	601	569

Base numbers re-weighted.

* Filled, otherwise sound.

There was greater evidence of dental treatment, and particularly restorative treatment, among women than among men, women having on average nearly one more tooth missing, and 2 more that were filled, otherwise sound, than men. Only 19% of women had no filled teeth compared to 28% of men. Large numbers of filled teeth were more often found among women, 28% having 12 or more filled, otherwise sound teeth compared with 17% of men with that number of filled teeth.

Men on the other hand more frequently had teeth with active decay, only 27% of men having no decayed teeth compared with 40% of women. On average the men had nearly one more decayed tooth. The men were also more likely to have a greater number of teeth classified as sound and untreated; on average they had 2 more teeth in this condition than did the women. In fact 29% of men had 18 or more sound and untreated teeth, whereas this was only so for 15% of the women.

We shall see later that the pattern of dentures in combination with natural teeth varies somewhat for men and women and this obviously is very closely related to which natural teeth were still at risk at the time of the dental examination and consequently to the numbers of teeth in the different conditions (see Chapter 7).

In Table 5.14 we give the tooth conditions for men and women of different ages. When we look at the tooth conditions by more than one factor at once, a table giving the full distributions becomes unmanageable; on the other hand the averages alone give, we feel, insufficient information and so in some of the subsequent tables, instead of giving the full distribution we show the proportions of people with certain numbers of teeth in the various conditions.

Table 5.14 shows that the sex differences which we found in Table 5.13 are in general true whatever age group we consider. It is of particular interest to examine the two youngest age groups, that is those aged 16-24 and those aged 25-34. Among the youngest adults (16-24), although there was virtually no difference in the overall average number of missing teeth, a difference in high levels of tooth loss was already established: proportionately more women had lost 18 or more natural teeth (4% compared to only 1% among the men). There was a considerable difference in the amount of restorative treatment among the youngest adults, women having on average 2-3 more filled, otherwise sound teeth. The proportion of women in this age group who had no filled, otherwise sound teeth was lower (16% compared to 25% among the men), and the proportion of women who had 12 or more filled, otherwise sound teeth was higher (28% compared to only 14% among the men). In terms of decay among the youngest adults, there was virtually no difference between the sexes in the average number of teeth which were currently decayed, but proportionately more women were decay-free (35% compared to 23% among the men). The youngest men had on average almost 3 more sound and untreated teeth than the women.

In the next age group (25-34), there were again differences in the amount of restorative treatment, women having more filled, otherwise sound teeth than men. In addition there was in this age group a considerable tooth loss difference between men and women, both in the average number of missing teeth and in the proportion who had 18 or more missing teeth. The women had on average 2 more missing teeth than the men, and almost one fifth (18%) of the women had lost 18 or more natural teeth compared to only 6% among the men. Men had on average almost one more decayed tooth and 2-3 more teeth that were sound and untreated.

There is, therefore, evidence of more dental treatment having been undergone by the women, and more treatment need among the men, even among the youngest groups of adults.

Table 5.14
THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR MEN AND WOMEN OF DIFFERENT AGES

Average number of teeth which were :	Adults with some natural teeth											
	Present age											
	16-24		25-34		35-44		45-54		55 and over		All ages	
	M	F	M	F	M	F	M	F	M	F	M	F
Missing	6.5	7.0	8.4	10.5	12.4	13.2	14.8	17.3	18.2	17.4	10.4	11.2
Present (at risk)	25.5	25.0	23.6	21.5	19.6	18.8	17.2	14.7	13.8	14.6	21.6	20.8
	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Decayed	2.9	2.6	3.1	2.3	2.5	1.8	2.0	1.2	2.8	1.3	2.8	2.1
Filled*	5.5	8.0	6.8	8.1	5.5	7.5	5.1	5.6	3.7	5.3	5.6	7.4
Sound and untreated	17.1	14.4	13.7	11.1	11.6	9.5	10.1	7.9	7.3	8.0	13.2	11.3
(Teeth at risk)	25.5	25.0	23.6	21.5	19.6	18.8	17.2	14.7	13.8	14.6	21.6	20.8
Proportion of people with :												
18 or more missing teeth	1%	4%	6%	18%	20%	28%	30%	54%	49%	47%	15%	21%
No decayed teeth	23%	35%	28%	39%	26%	40%	37%	45%	23%	51%	27%	40%
No filled**teeth	25%	16%	24%	15%	32%	16%	23%	31%	46%	30%	28%	19%
12 or more filled* teeth	14%	28%	24%	36%	19%	27%	10%	18%	11%	15%	17%	28%
BASES	186	197	149	149	124	110	87	65	55	49	601	569

Base numbers re-weighted.
*Filled, otherwise sound.

We next look at social class in relation to natural teeth, and Table 5.15 gives the average number of teeth in the different conditions and certain "indicators" of dental health.

High levels of tooth loss were not confined to any particular social class, 16% of those in the top social class group having lost 18 or more teeth compared to 18% in the intermediate social class group and 19% in the lowest social class group. There were, however, considerable social class differences in the conditions of those teeth which were present, and it was the top social class group (ie professional, managerial and skilled non-manual grouped together) which was outstanding. These people had considerably more evidence of restorative treatment than people in the other two social class groups. For example they had twice the number of filled teeth, only 10% of them had no filled teeth compared to 29% and 35% in the other two social class groups, and over one third of them (35%) had 12 or more filled teeth compared to 16% and 13% in the other two social class groups.

Table 5.15

THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR DIFFERENT SOCIAL CLASSES

Average number of teeth which were :	Adults with some natural teeth			
	Household Social Class I, II & III III manual IV and V non-manual			All# Social Classes
Missing	10.2	11.1	11.1	10.8
Present (at risk)	21.8	20.9	20.9	21.2
	32.0	32.0	32.0	32.0
Decayed	1.5	2.7	3.2	2.4
Filled*	9.0	5.5	4.5	6.5
Sound and untreated	11.3	12.7	13.2	12.3
(Teeth at risk)	21.8	20.9	20.9	21.2
Proportion of people with :				
18 or more missing teeth	16%	18%	19%	18%
No decayed teeth	46%	27%	24%	33%
No filled* teeth	10%	29%	35%	23%
12 or more filled teeth	35%	16%	13%	23%
BASES	367	470	255	1170

Base numbers re-weighted.

*Filled, otherwise sound.

#Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

There was, however, a reversal of this social class difference when we consider the number of sound and untreated teeth; adults in the lowest social class group had on average 2 more sound and untreated teeth than adults in the top social class group. This (at first sight unexpected) result must, however, be interpreted with extreme caution. On its own, "the number of sound and untreated teeth" can be a somewhat misleading indicator because of the differences in methods used in survey data collection and the methods available for use in clinical treatment. Our home examination detected visible decay only. In a clinical situation the dentist may detect hidden decay by X-ray, or may decide to treat an earlier stage of visible decay than we were counting as such. Because of this those groups of the community more exposed to dental treatment can appear to have fewer sound and untreated teeth

according to our examination criteria. For this reason the lower social classes appear to be in an overall 'healthier' dental position with regard to sound and untreated teeth. The limitations of using sound and untreated teeth as an indicator of dental health must therefore be borne in mind whenever we give the numbers of teeth in this condition for different groups of people.

We next look at tooth conditions for adults of different social classes and ages. In previous tables where we have given figures for different ages, we have used five age groups. But because of the small numbers of people which would result if we further split each of these five groups into the three main social class groups, has been necessary to use broader age groups, 16-34, 35-54 and 55 and over. The figures for these three age groups are given in Tables 5.16, 5.17 and 5.18 respectively.

Table 5.16
THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR
ADULTS AGED 16-34 OF DIFFERENT SOCIAL CLASSES

Average number of teeth which were :	Adults aged 16-34 with some natural teeth ¹			
	Household Social Class			All [#] Social Classes
	I, II & III non-manual	III manual	IV and V	
Missing	7.3	8.4	8.3	7.9
Present (at risk)	24.7	23.6	23.7	24.1
	32.0	32.0	32.0	32.0
Decayed	1.7	3.0	3.4	2.7
Filled *	9.9	6.1	5.2	7.1
Sound and untreated	13.1	14.5	15.1	14.3
(Teeth at risk)	24.7	23.6	23.7	24.1
Proportion of people with :				
18 or more missing teeth	5%	7%	9%	7%
No decayed teeth	44%	25%	26%	31%
No filled * teeth	9%	25%	26%	20%
12 or more filled * teeth	42%	19%	15%	25%
BASES	186	298	151	679

Base numbers re-weighted.

[#]Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

*Filled, otherwise sound.

We consider firstly those people aged 16-34 (Table 5.16). Although there was hardly any difference in the number of missing teeth, there was considerably more evidence of restorative treatment among people of the top social class group. Those people had on average 9.9 filled teeth compared to 6.1 in the intermediate social class group and 5.2 in the lowest social class group. Only 9% of people in the top social class group had no filled teeth compared to 25% and 26% in the other two groups.

As one might expect there was much less current decay among the young top social class group, these people having 1.7 decayed teeth compared to almost twice this number in the other two groups (3.0 in the intermediate group and 3.4 in the lowest social class group). A substantial proportion (44%) of young adults in the top social class group were decay-free at the time of the survey, this proportion being 25% and 26% in the other two social class groups.

Thus among the youngest adults (16-34) the variation with social class was already established.

Table 5.17

THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR ADULTS
AGED 35-54 OF DIFFERENT SOCIAL CLASSES

Average number of teeth which were:	Adults aged 35-54 with some natural teeth			
	Household Social Class			All # Social Classes
	I, II & III non-manual	III manual	IV and V	
Missing	12.4	15.4	14.4	14.0
Present (at risk)	19.6	16.6	17.6	18.0
	32.0	32.0	32.0	32.0
Decayed	1.3	2.2	2.8	2.0
Filled*	8.4	4.6	4.0	6.0
Sound and untreated	9.9	9.8	10.8	10.0
(Teeth at risk)	19.6	16.6	17.6	18.0
Proportion of people with :				
18 or more missing teeth	24%	37%	32%	30%
No decayed teeth	50%	34%	21%	36%
No filled* teeth	9%	33%	41%	26%
12 or more filled* teeth	30%	13%	11%	19%
BASES	134	149	84	386

Base numbers re-weighted.

#Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

*Filled, otherwise sound.

In the next age group, that is those adults aged 35-54 (Table 5.17) the social class differences were even more marked, resulting in people in the top social class group being in a considerably more favourable position with regard to dental health: these people had on average twice the number of filled, otherwise sound teeth (they had on average 8.4 filled teeth compared to only 4.0 in the lowest social class group). They had 1-2 fewer currently decayed teeth, and half of them (50%) were decay-free, compared to only 21% of people of the same age in the lowest social class group.

We have, in general, been comparing the top social class group and the lowest social class group. Those people in the intermediate social class group (that is the skilled manual category), while being generally in a more favourable position dentally than adults in the lowest social classes, tended to be more like this latter group in terms of dental health than like the top social class group; this was true of each of the two age groups we have been considering.

Among the oldest adults, that is those aged 55 and over (Table 5.18) the social class differences observed for the other two age groups still emerge despite the small base figures. Again, adults in the top social class group had considerably more restorative treatment, and fewer decayed teeth.

Table 5.18

THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR ADULTS
AGED 55 AND OVER OF DIFFERENT SOCIAL CLASSES

Average number of teeth which were :	Adults aged 55 and over with some natural teeth			
	Household Social Class I, II & III manual non-manual III manual IV and V			All [#] Social Classes
Missing	15.9	18.3	18.9	17.8
Present (at risk)	16.1	13.7	13.1	14.2
	32.0	32.0	32.0	32.0
Decayed	1.5	3.3	2.9	2.1
Filled *	6.9	2.8	0.9	4.5
Sound and untreated	7.7	7.6	9.3	7.6
(Teeth at risk)	16.1	13.7	13.1	14.2
Proportion of people with :				
18 or more missing teeth	37%	47%	51%	48%
No decayed teeth	39%	21%	26%	36%
No filled* teeth *	19%	59%	73%	38%
12 or more filled teeth	23%	6%	-	13%
BASES	47	22	19	105

Base numbers re-weighted.

[#]Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

*Filled, otherwise sound.

5.3 The Condition of the Natural Teeth by Dental Attendance Pattern

As mentioned before, dental treatment involves an interaction of patient and dentist; the amount of treatment a person has is obviously affected by their dental attendance pattern, in the sense that treatment cannot be carried out if the person does not go to the dentist. We show in Table 5.19 the proportion of people who said they went to the dentist for a regular check-up, an occasional check-up, and only when they were having trouble.

Table 5.19

DENTAL ATTENDANCE PATTERN FOR ADULTS WITH SOME NATURAL TEETH

Attendance pattern	All adults with some natural teeth
	%
Regular check-up	33
Occasional check-up	14
Only when having trouble	53
	100
BASE	1170*

Base number re-weighted.

*Includes one person who had never been to a dentist.

Only one third (33%) of adults with some natural teeth said that they went to the dentist for a regular check-up; a further 14% went for an occasional check-up, and over half (53%) only went when they were having trouble. Of course these were the informants' opinions of their dental attendance patterns, but we can form some idea of the frequency of visits implied by these answers because we also asked during the interview about the length of time since the last visit to the dentist. We therefore look at the relationship between the two.

Table 5.20
LENGTH OF TIME SINCE LAST VISIT, BY DENTAL ATTENDANCE PATTERN, FOR ADULTS
WITH SOME NATURAL TEETH

Length of time since last went to the dentist	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when having trouble	All
	%	%	%	%
Under treatment now	14	9	3	7
Less than 6 months	53	21	14	28
6 months, up to 1 year	29	39	19	25
More than 1, up to 2 years	4	14	15	11
More than 2, up to 3 years	-	10	16	10
More than 3, up to 5 years	-	6	15	9
More than 5, up to 10 years	-	1	13	7
More than 10 years	-	-	5	3
	100	100	100	100
BASES	389	157	623	1170*

Base numbers re-weighted.

* Includes one person who had never been to a dentist.

Of those people who said that they went to the dentist for a regular check-up, 96% said they had been to the dentist in the year prior to the interview (the other 4% had last been to the dentist 1-2 years before the interview). Among those who only went when they were having trouble, only 36% had been to the dentist in the year prior to the interview, a further 33% not having been for at least 3 years. There was a small proportion (5%) of irregular attenders (ie those who only went to the dentist when they were having trouble with their teeth) whose visits to the dentist were obviously very infrequent indeed, their last visit being more than 10 years before the interview. Those people who said that they went for an occasional check-up had, in general, last been to the dentist somewhat longer ago than the regular attenders, but not as long ago as those who only went when having trouble. There was, therefore, good agreement between the person's statement about the regularity of their dental attendance and their estimate of the length of time since they last went to the dentist, so we may with confidence use the opinion statements in looking at variations in attendance.

We have seen that dental condition varied considerably with age, sex and social class, and we next investigate how patterns of dental attendance are related to dental condition. In this analysis we do not give the detailed distributions of the numbers of teeth in the various conditions (as the tables would become unmanageable) but give, as we did in the latter part of Section 5.2, the averages and various dental indicators. Since denture wearers have been shown to have fewer

natural teeth at risk, we anticipate some of the information about dentures by including as an additional indicator of dental condition the proportion of dentate adults who have a denture and also the proportion with a full upper denture.

Table 5.21

THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS, BY DENTAL ATTENDANCE PATTERN

Average number of teeth which were:	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when having trouble	All
Missing	8.5	10.2	12.4	10.8
Present (at risk)	23.5	21.8	19.6	21.2
	32.0	32.0	32.0	32.0
Decayed	1.1	1.8	3.4	2.4
Filled#	11.2	7.6	3.2	6.5
Sound and untreated	11.2	12.4	13.0	12.3
(Teeth at risk)	23.5	21.8	19.6	21.2
Proportion of people with:				
18 or more missing teeth	8%	16%	25%	18%
No decayed teeth	53%	39%	19%	33%
No filled# teeth	2%	8%	40%	23%
12 or more filled# teeth	47%	23%	6%	5%
Natural teeth and dentures	29%	34%	39%	35%
Full upper denture	5%	12%	21%	15%
BASES	389	157	623	1170*

Base numbers re-weighted.

*Includes one person who had never been to a dentist.

#Filled, otherwise sound.

Table 5.21 shows that the number of teeth in each condition was quite different for the different attendance patterns. Those people who went for a regular check-up had on average 4 fewer missing teeth than those who only went when they were having trouble (8.5 missing compared to 12.4); large numbers of missing teeth were comparatively rare among the regular attenders (only 8% had 18 or more teeth missing) whereas this was more common among the irregular attenders (25% had 18 or more teeth missing).

Decayed teeth were far less common among those who went for a regular check-up, these people having on average 1.1 decayed teeth compared to 3.4 among those who only went when they were having trouble. Among the irregular dental attenders, who made up more than half of all the people examined, there was therefore a considerable amount of treatment need; in fact only 19% of this group of people had decay-free mouths compared to over half (53%) of the regular attenders.

There were large differences in the amounts of restorative work, the regular dental attenders having on average 11.2 filled, otherwise sound, teeth compared to only 3.2 among those who only went when having trouble. Very few of the regular attenders had not experienced restorative treatment (only 2% had no teeth which were filled, otherwise sound) whereas among the irregular attenders a considerable

proportion, 40%, had no teeth which were filled, otherwise sound. Large numbers of filled, otherwise sound, teeth were often found among the regular attenders (47% had 12 or more), whereas this was the exception among those who only went when having trouble (only 6% had 12 or more teeth which were filled, otherwise sound).

The number of sound and untreated teeth showed the same (and, at first sight, surprising) reverse trend that was found for social class in Section 5.2. Thus the regular dental attenders had on average 2 fewer sound and untreated teeth than the irregular attenders (11.2 compared to 13.0, a difference in the reverse direction to what one might expect). Again it must be borne in mind that the number of sound and untreated teeth reflects that treatment of decay might well take place at a level of decay which would have remained undetected by the survey criteria, but once restored will be counted as previous decay experience.

Those people who went to the dentist for an occasional check-up had more missing teeth, more decayed teeth, fewer filled, otherwise sound teeth and more sound and untreated teeth, than those who went for a regular check-up, but were in a somewhat more favourable position than the irregular dental attenders.

We shall next look, in Table 5.22, to see whether the difference in dental state between attendance groups persists at all ages. Before undertaking this more complex analysis it is worth considering ways of simplifying the tables. We have already seen that the proportion of people who go to the dentist for an occasional check-up was small compared to the other two dental attendance groups, and that these people had a somewhat "intermediate" level of dental health. So we shall omit these people from subsequent tables where we look at attendance pattern in combination with other factors, and confine our attention to two groups only, those who go to the dentist for a regular check-up, and those who only go when they are having trouble with their teeth (the irregulars). We see from Table 5.22 that the differences in dental condition between the regular and irregular attenders existed in each age group. Among the youngest adults (16-34), large differences were already established:- the regular attenders had on average 2 fewer missing teeth than the irregular attenders (1% of the regular attenders had 18 or more teeth missing compared to 10% of the irregular attenders); the regular dental attenders had fewer decayed teeth than those who only went when having trouble (1.1 decayed teeth on average compared to 3.9 among the irregular attenders); just over half (53%) of the regular attenders had decay-free mouths compared to only 15% of the irregular attenders. The differences in restorative treatment were particularly marked, the regular attenders having on average 11.7 filled, otherwise sound, teeth compared to only 3.9 among the irregular attenders (the proportions who had no filled, otherwise sound, teeth were 3% and 35% respectively, and the proportions who had 12 or more were 54% and 7% respectively).

In the next age group (35-54) the difference in the number of missing teeth was more marked, the regular attenders having on average 5 fewer missing teeth than the irregular attenders. But although there was this distinct advantage for the regular dental attenders in terms of missing teeth, there was in this age group considerable tooth loss even among the regular attenders:- 16% had 18 or more missing teeth, the proportion for the irregular attenders being 39%. Thus we have a considerable number of people with high levels of tooth loss, who chose to go to the dentist for a regular check-up; we do not know, of course, whether they had always been regular dental attenders but if this was the case then it would appear that, for these people, regular attendance at the dentist had not been altogether successful in saving their natural teeth.

Table 5.22
OPTIMAL CONDITIONS FOR DIFFERENT AGES AND ATTENDANCE PATTERNS

Adults with some natural teeth										
Average number of teeth which were:	16 - 34				Present Age 35 - 54		55 and over		All Ages	
	Regular		Irregular		Regular	Irregular	Regular	Irregular	Regular	Irregular
Missing	6.5	8.8	10.8	15.9	12.9	19.9	8.5	12.4		
Present (at risk)	25.5	23.2	21.2	16.1	19.1	12.1	23.5	19.6		
	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
Decayed	1.1	3.9	1.0	2.7	0.8	2.6	1.1	3.4		
Filled#	11.7	3.9	10.8	2.7	10.3	1.9	11.2	3.2		
Sound and untreated	12.7	15.4	9.4	10.7	8.0	7.6	11.2	13.0		
(Teeth at risk)	25.5	23.2	21.2	16.1	19.1	12.1	23.5	19.6		
Proportion of people with:										
18 or more missing teeth	1%	10%	16%	39%	24%	57%	8%	25%		
No decayed teeth	53%	15%	53%	23%	55%	25%	55%	10%		
No filled# teeth	3%	35%	2%	44%	0%	55%	2%	40%		
12 or more filled# teeth	54%	7%	41%	5%	35%	3%	47%	6%		
Natural teeth and dentures	16%	23%	45%	55%	50%	76%	29%	39%		
Full upper denture	*	8%	10%	33%	20%	52%	5%	21%		
BASES	225	344	134	215	30	63	389	623		

Base numbers re-weighted.
#Filled, otherwise sound.
*0.4%.

Among those aged 35-54 there were again large differences in decay, the regular attenders having on average 1.0 decayed teeth compared to 2.7 among the irregular attenders. Decay-free mouths were again much more common among the regular attenders than among the irregular attenders (the proportions with no decayed teeth were 53% and 23% respectively). The amount of restorative treatment differed markedly, the regular attenders having 10.8 teeth which were filled, otherwise sound, compared to only 2.7 among the irregular attenders (the proportions who had no filled, otherwise sound, teeth were 2% and 44% respectively, and the proportions with 12 or more were 41% and 5% respectively).

Among the oldest people, that is those aged 55 and over, the numbers of regular and irregular attenders were both small. Despite this the difference within attendance pattern still existed, the regular attenders having on average fewer missing, fewer decayed, and more filled, otherwise sound teeth than the irregular attenders (in this age group the regular attenders had virtually the same number of sound and untreated teeth as the irregular attenders, but the regular attenders had far more teeth at risk than the irregular attenders).

Having seen earlier that there was some difference between men and women in dental condition, it is of interest to see whether or not regular dental attendance benefits the sexes alike; in Table 5.23 we give the position for males and females separately. Because the numbers of people in the oldest age group, that is those aged 55 and over, were small, in Table 5.23 we confine our attention to the age groups 16-34 and 35-54.

Among those aged 16-34 the men who went for a regular check-up had virtually the same numbers of teeth in the different conditions as did the women regular attenders. The position of the irregular attenders was somewhat different, in that already in this youngest age group there were considerable sex differences. The men who were irregular attenders had on average 2-3 fewer missing teeth than the women; comparatively few of the men had high levels of tooth loss (5% had 18 or more teeth missing) whereas this was much more common among the female irregular attenders (18%). Among these irregular attenders, the men also had 3 more sound and untreated teeth and one fewer filled, otherwise sound, teeth.

In the next age group, 35-54, regular dental attendance again benefitted the sexes equally, in that the male regular attenders had virtually the same numbers of teeth in the different conditions as the female regular attenders. It is interesting that among those who only went to the dentist when having trouble, the difference in tooth loss between the sexes (which we observed for the youngest adults) was not particularly marked among those aged 35-54. Although very few of the irregular attenders had extensive evidence of restorative treatment, among the female irregular attenders in this age group 8% had 12 or more filled teeth compared to only 2% of the male irregular attenders.

It is of value to compare the variations in Table 5.22 with those in Tables 5.16 - 5.18. It would appear that the attendance pattern differences are even greater than the (large) social class differences which we found earlier, suggesting that attendance at the dentist is the more decisive factor in determining dental condition. We now combine dental attendance and social class to see which sections of the population are in the most and least favourable positions.

Table 5.23
THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR DIFFERENT SEXES AND ATTENDANCE PATTERNS

Average number of teeth which were:	Adults aged 16-34 with some natural teeth						Adults aged 35-54 with some natural teeth					
	Males			Females			Both			Males		
	Regular	Irregular		Regular	Irregular		Regular	Irregular		Regular	Irregular	Both
Missing	6.4	7.8		6.6	10.4		6.5	8.8		10.0	15.4	10.8
Present (at risk)	25.6	24.2		25.4	21.6		25.5	23.2		22.0	16.6	21.2
	32.0	32.0		32.0	32.0		32.0	32.0		32.0	32.0	32.0
Decayed	1.2	4.0		1.1	3.7		1.1	3.9		1.2	3.0	1.0
Filled*	11.4	3.5		11.8	4.4		11.7	3.9		10.3	2.2	3.3
Sound and untreated	13.0	16.7		12.5	13.5		12.7	15.4		10.5	11.4	9.4
	25.6	24.2		25.4	21.6		25.5	23.2		27.0	16.6	21.2
Proportion of people with:												
16 or more missing teeth	0%	5%		1%	10%		1%	10%		10%	31%	16%
No decayed teeth	49%	10%		55%	22%		53%	15%		46%	22%	53%
No filled* teeth	2%	3%		3%	30%		3%	35%		3%	45%	7%
12 or more filled* teeth	50%	5%		56%	9%		54%	7%		37%	2%	41%
Natural teeth and dentures	15%	16%		16%	32%		16%	23%		3%	4%	4%
Full upper denture	0%	4%		1%	15%		**	6%		7%	20%	10%
BASES	86	200		139	144		225	344		68	127	134

Bases numbers re-weighted.
* Filled, otherwise sound.
** 0.4%.

We consider firstly the youngest age group, that is those aged 16-34 (Table 5.24). Having already seen how the dental condition is related to social class and how it is related to dental attendance pattern, the position in Table 5.24 is much as we would expect. Among those aged 16-34, the regular attenders in the top social class group had a particularly small number of decayed teeth, a particularly large number of filled teeth, and a small number of sound and untreated teeth. The irregular attenders in the lowest social class group had a particularly large number of decayed teeth, a low number of filled teeth and a particularly high number of sound and untreated teeth.

If we confine our attention to the regular dental attenders, the social class differences were fairly small. Among the irregular dental attenders the differences between the social classes were somewhat larger, and it was the irregular dental attenders of the highest social class group who tended to stand out in that they had fewer decayed and more filled, otherwise sound teeth than the other irregular attenders. Even among the irregular attenders, however, the social class differences were small compared to the overall differences between the regular and irregular attenders; attendance pattern would appear to be much the more important factor, and that once the attendance pattern is established then social class is only of secondary importance.

Among those aged 35-54 (Table 5.25) social class had some effect both for the regular attenders and the irregular attenders. For example the regular attenders in the top social class group had 11.8 filled teeth compared to 7.8 among the regular attenders of the intermediate social class group; and the irregular attenders in the top social class group had 3.8 filled teeth compared to 2.4 among the irregular attenders in the intermediate social class group.

In Table 5.26 we give for the youngest adults the position for different social classes, sexes and attendance patterns. In each social class group it is the female irregular attenders who were in by far the least favourable position with regard to tooth loss; that social class appears to be of secondary importance to attendance pattern can be seen from the fact that even among these female irregular attenders, those in the top social class group were not appreciably better off than those in the lowest social class group (the proportions with 18 or more missing teeth were 15% and 17% respectively).

It is always of value, when there are two (or more) factors, each of which appear to be of importance, to compare their relative importance. In this chapter we found considerable social class differences and dental attendance pattern differences in the condition of the natural teeth, even among the youngest adults. That dental attendance is of primary importance in relation to dental health can be seen by the fact that when we looked at both social class and dental attendance pattern, the differences in dental health between the social classes were considerably reduced (and in some cases disappeared altogether). The better state of the top social class group is explained largely in terms of a higher proportion of that group attending for regular dental treatment.

Among adults in Scotland the really important thing, and the thing which needs changing, is attitudes towards dentistry (and thereby dental attendance pattern and the treatment received).

Table 5.24
THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR DIFFERENT
SOCIAL CLASSES AND ATTENDANCE PATTERNS

Average number of teeth which were :	Adults aged 16-34 with some natural teeth									
	Household Social Class					IV non-manual IV manual and V				
	I, II & III non-manual	III manual		IV non-manual IV manual and V		All* Social Classes		Regular Irregular		
	Regular	Irregular	Regular	Irregular	Regular	Irregular	Regular	Irregular	Regular	Irregular
Missing	6.2	8.8	7.2	9.0	6.4	8.7	6.5	8.8		
Present (at risk)	25.8	23.2	24.8	23.0	25.6	23.3	25.5	23.2		
	31.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0		
Decayed	1.0	2.8	1.1	4.1	1.7	4.3	1.1	3.9		
Filled #	11.6	5.7	11.0	5.6	10.9	2.9	11.7	3.9		
Sound and untreated	12.2	14.7	12.7	15.3	13.0	16.1	12.7	15.4		
(teeth at risk)	25.8	29.2	24.8	23.0	25.6	23.3	25.5	23.2		
Proportion of people with :										
18 or more missing teeth	1%	12%	1%	10%	0%	10%	1%	10%		
No decayed teeth	56%	21%	51%	11%	43%	17%	53%	15%		
No filled teeth	1%	24%	4%	39%	6%	33%	3%	35%		
12 or more filled teeth	5%	16%	4%	6%	5%	1%	5%	7%		
Natural teeth and dentures	10%	16%	17%	26%	12%	23%	16%	23%		
Full upper denture	0%	10%	1%	0%	0%	7%	**	0%		
BASES	95	53	82	177	33	94	225	344		

Base numbers re-weighted.
* Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.
** 0.6%.
#filled, otherwise sound.

Table 5.25

THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR DIFFERENT SOCIAL CLASSES AND ATTENDANCE PATTERNS

Average number of teeth which were :	Adults aged 35-54 with some natural teeth									
	Household Social Class				IV non-manual and V				All* Social Classes	
	I, II & III non-manual	III manual	IV non-manual and V	All*	Regular	Irregular	Regular	Irregular	Regular	Irregular
Missing										
Present (at risk)	9.9	15.4	16.6	16.6	16.6	15.4	15.4	15.4	10.8	15.9
	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	21.2	16.1
	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0	32.0
Decayed	0.9	1.8	3.8	7.8	2.9	2.4	2.4	2.4	1.0	2.7
Filled #	11.8	11.8	11.8	11.8	11.8	11.8	11.8	11.8	10.8	10.7
Sound and untreated	9.4	11.0	11.0	11.0	11.0	11.0	11.0	11.0	9.4	10.7
(Teeth at risk)	22.1	22.1	22.1	22.1	22.1	22.1	22.1	22.1	21.2	16.1
Proportion of people with :										
18 or more missing teeth	1.4%	2.5%	4.3%	4.3%	4.3%	4.3%	4.3%	4.3%	1.6%	3.9%
No decayed teeth	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%	5.7%
No filled teeth	1.6%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	2.1%	1.6%	1.6%
12 or more filled teeth	4.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	7.7%	4.7%	5.6%
Natural teeth and dentures	3.3%	4.9%	6.6%	6.6%	6.6%	6.6%	6.6%	6.6%	4.9%	5.6%
Full upper denture	1.0%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	3.2%	1.0%	3.2%
INDEX	73	52	38	31	17	63	134	215		

Base numbers re-weighted.

Base number too small to give percentages or averages.

* Indicates the housewife, student, unemployed and unclassified elsewhere in the table.

Filled, otherwise sound.

Table 5.26
THE NUMBER OF TEETH IN THE DIFFERENT CONDITIONS FOR DIFFERENT SOCIAL CLASSES, SEXES AND ATTENDANCE PATTERNS

Average number of teeth which were :	Adults aged 16-34 with some natural teeth													
	Household Social Class													
	I, II and III non-manual							IV non-manual, IV manual and V						
	MALES		FEMALES		III manual			MALES		FEMALES		All social classes		
	Regular	Irregular	Regular	Irregular	Regular	Irregular	Regular	Irregular	Regular	Irregular	Regular	Irregular	Regular	Irregular
Missing Present (at risk)	6.4 25.6 32.0	7.9 24.1 32.0	6.1 25.9 32.0	10.1 21.9 32.0	7.1 24.9 32.0	7.8 24.2 32.0	7.3 21.0 32.0	* 24.3 32.0	* 22.1 32.0	* 22.1 32.0	6.4 25.6 32.0	7.8 24.2 32.0	6.6 25.4 32.0	10.4 21.6 32.0
Decayed Filled #	1.3 12.4 11.9	2.6 6.3 15.2	0.9 12.6 12.4	3.1 4.9 13.9	1.2 10.5 13.2	4.1 11.4 16.7	0.9 3.9 13.1	* 2.4 37.5	* 3.5 14.4	* 3.5 13.0	1.2 11.4 13.0	4.0 3.5 16.7	1.1 11.8 12.5	3.7 4.4 19.5
Sound and untreated (Teeth at risk)	25.6	24.1	25.9	21.9	24.9	24.2	24.7	21.0	22.1	22.1	25.6	24.2	25.4	21.6
Proportion of people with :														
18 or more missing teeth	0%	10%	2%	15%	0%	4%	2%	23%	*	4%	0%	5%	1%	18%
No decayed teeth	45%	21%	62%	20%	48%	7%	52%	19%	*	10%	4%	10%	55%	22%
No filled teeth	0%	24%	2%	23%	3%	10%	4%	36%	*	40%	2%	39%	3%	30%
12 or more filled teeth	56%	10%	63%	14%	53%	5%	53%	0%	+	+	5%	50%	56%	5%
Natural teeth and dentures	13%	11%	20%	23%	21%	10%	15%	30%	*	14%	15%	16%	16%	35%
Full upper denture	0%	7%	0%	14%	0%	3%	2%	17%	*	4%	0%	4%	1%	15%
NONE	30	30	65	23	34	112	38	65	14	52	18	41	86	144

Base numbers re-weighted.
 * Base numbers too small to give percentages or averages.
 ** Include the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.
 # Filled, otherwise sound.
 + 0-5%.

6 The Gum Condition of Dentate Adults

We have already referred to the great difficulty of measuring gum conditions in a standardised way and how in the Scottish survey an attempt was made to improve upon the methods used earlier in England and Wales. A consequence of changing the method is that no direct comparisons of oral hygiene or gum condition can be made between the two surveys. The results can, of course, be used to show the variation in oral conditions with age, sex, social class and attendance pattern within Scotland.

6.1 The Condition of the Gums

In the Scottish survey we obtained two measurements relating to oral hygiene, three relating to the condition of the gums, and some measurements relating to the jaw. These measures will now be described in turn and the results given for all adults still retaining some natural teeth.

a) DEBRIS

The debris measurement was taken at 6 particular locations in the mouth. If the nominated tooth was missing then a rota of substitution was followed. If none of the substitutes was present then the measurement was not carried out for that position. The nominated teeth and their substitutes were as follows:-

Nominated teeth		Substitutes
Upper left 6	-	Upper left 7, 8, 5
Upper right 1	-	Upper left 1, or either upper 2
Upper right 6	-	Upper right 7, 8, 5
Lower right 6	-	} as for upper jaw
Lower left 1	-	
Lower left 6	-	

The dentist examined these teeth in accordance with the criteria* and scored the tooth 0, 1, 2 or 3 as follows:-

0 - No debris or stain

1 - Not more than one third of tooth surface involved with debris, or some staining

2 - More than one third, up to two thirds, of tooth surface involved with debris

3 - More than two thirds of tooth surface involved with debris

* See appendix for detailed criteria.

Even though a system of substitution was used there were cases where neither the nominated tooth nor a substitute was present; in fact 16% of the locations could not be assessed at all. In 49% of the locations the nominated tooth itself was assessed, and in 35% of the locations an assessment was made using substitutions. These proportions varied according to the positions in the mouth and Table 6.1 gives the results in detail.

Table 6.1
AVAILABILITY OF NOMINATED TEETH FOR THE DEBRIS MEASUREMENTS
AMONG ADULTS, OF ALL AGES, WITH SOME NATURAL TEETH

	Adults with some natural teeth						
	Nominated tooth position						All nominated tooth positions
	UL6	UR1	UR6	LR6	LL1	LL6	
	%	%	%	%	%	%	%
Nominated tooth assessed	33	78	32	27	96	26	49
Substitute assessed	46	2	46	58	2	58	35
No assessment made	21	20	22	15	2	16	16
	100	100	100	100	100	100	100
BASES - Total number of locations required	1170	1170	1170	1170	1170	1170	7020

Base numbers re-weighted.

The 'sixes' were only available for assessment in about one third of cases in the upper jaw and a quarter of cases in the lower jaw, but substitution was possible in nearly half of the upper jaw locations and well over half of the lower jaw locations. There was much less frequent need for substitution among the anterior nominated teeth, 78% of upper right 'ones' and 96% of lower left 'ones' being available for assessment. The high level of non-assessment in the upper jaw anterior location compared to the lower jaw anterior location reflects the prevalence of full clearance in some upper jaws, which is of course also reflected in the upper posterior locations. In the lower jaw the anterior location was nearly always assessed but the posterior locations could not be assessed in 15-16% of cases. This overall pattern of whether the assessments for debris could be carried out reflects the high loss of 'sixes' and the large variation in the number of teeth present among adults who still have some natural teeth. Confining ourselves to those locations which were assessed the distribution of the debris scores are given in Table 6.2.

Overall, 50% of locations examined were free from debris and 8% were involved to an extent exceeding one third of the tooth. The rest of the locations were not free from debris (or staining) but were involved to a lesser extent. The different locations in the mouth contributed differentially to this overall picture. A much higher proportion of anterior locations were free from debris (74% in the upper jaw, 64% in the lower jaw) than was the case for posterior locations, especially the lower jaw posterior locations (31% and 29% free from debris).

Table 6.2
DEBRIS SCORES (FOR THOSE LOCATIONS WHERE ASSESSMENT
WAS POSSIBLE) AMONG ADULTS, OF ALL AGES, WITH SOME NATURAL TEETH

Debris score	Adults with some natural teeth						
	Nominated tooth position						All nominated tooth positions
	UL6	UR1	UR6	LR6	LL1	LL6	
	%	%	%	%	%	%	%
0	51	74	51	31	64	29	50
1	40	25	39	54	32	58	42
2	8	1	9	13	3	11	7
3	1	-	1	2	1	2	1
	100	100	100	100	100	100	100
BASES - Number of locations assessed	927	942	919	994	1142	983	5907

Base numbers re-weighted.

As the assessments for debris were made on a basis of scores from 0 to 3 it is possible to obtain a whole mouth score for each person and then to average this over the number of locations assessed. This average debris score is a useful way of summarising the debris information but it has some shortcomings. Since the assessments could not be made for a number of the locations, and since the locations themselves contributed differentially, the summarised average debris score is most reliable when the analysis is based on a group of people with roughly similar dental states (in terms of the number of teeth present). Table 6.3 gives the distribution of average debris scores for adults, of all ages, with some natural teeth.

Table 6.3
AVERAGE DEBRIS SCORE PER NOMINATED TOOTH FOR
ADULTS, OF ALL AGES, WITH SOME NATURAL TEETH

Average debris score	Adults with some natural teeth
	%
No assessments made	1
Zero	20
Less than 0.5	20
0.5, less than 1	31
1, less than 2	25
2 or more	3
	100
Overall average	0.62
BASE	1170

Base number re-weighted.

A small proportion (1%) of those with natural teeth had so few teeth, and in such positions, that in fact none of the six debris measurements could be made, even allowing for substitution. Although half of the tooth positions were free from debris only one in five (20%) of adults with some natural teeth had no evidence of debris in any of the locations assessed. Only 3% of dentate adults had, on average, a score of 2 or more per location (ie all locations were, on average, involved to an extent of more than one third of the tooth), but 28% had an

average score of one or more. It is difficult to give a title to the numeric ranges of the average scores, but it will be of interest later to compare the differences in gradations between people of different habits and attitudes.

b) CALCULUS

The basis of the calculus assessment was exactly the same as the debris assessment. The same six locations were used, together with the same method of substitution. Consequently the same limitations apply, that is that the average calculus score is most robust when used among people with roughly similar numbers of teeth present.

Again the dentist scored the locations on a scale 0, 1, 2 or 3 as follows:-

- 0 - No calculus
- 1 - Supragingival calculus covering not more than one third of surface
- 2 - Supragingival calculus covering more than one third, up to two thirds, of surface, or flecks of subgingival calculus
- 3 - Supragingival calculus covering more than two thirds of surface or a continuous band of subgingival calculus

The assessment thus included both supragingival and subgingival calculus. The availability of nominated teeth for calculus assessment was, of course, exactly the same as that for the debris assessment and is shown in Table 6.1. Confining ourselves to those locations which were assessed we show the distribution of the calculus scores for the different locations and for all locations together in Table 6.4.

Table 6.4
CALCULUS SCORES (FOR THOSE LOCATIONS WHERE ASSESSMENT WAS POSSIBLE)
AMONG ADULTS, OF ALL AGES, WITH SOME NATURAL TEETH

Calculus score	Adults with some natural teeth						
	Nominated tooth position						All nominated tooth positions
	UL6	UR1	UR6	LR6	LL1	LL6	
0	68	90	70	64	73	63	71
1	11	2	10	10	8	10	9
2	16	7	15	19	13	20	15
3	5	1	5	7	6	7	5
	100	100	100	100	100	100	100
BASES - Number of locations assessed	927	942	919	994	1142	983	5907

Base numbers re-weighted.

Overall 71% of locations assessed were free from calculus, and the variation in this proportion according to the location involved ranged from 63% to 90%. The only location that was markedly different however was the upper anterior position where only 10% of assessments were positive.

Considerably more locations were free from calculus than had been found free from debris (only 50% were free from debris), but at the other extreme a higher proportion of positive calculus codes were of a more serious nature; 20% of all locations were assessed as being involved with supragingival calculus covering more than a third of the tooth (or having some subgingival calculus), compared with 8% of debris scores involving more than a third of the tooth.

Table 6.5
AVERAGE CALCULUS SCORE PER NOMINATED TOOTH
FOR ADULTS, OF ALL AGES, WITH SOME NATURAL TEETH

Average calculus score	Adults with some natural teeth
No assessment made	% -
Zero	1
Less than 0.5	43
0.5, less than 1	15
1, less than 2	14
2 or more	17
	10
	100
Overall average	0.59
BASE	1170

Base number re-weighted.

Although 71% of the locations assessed were free from calculus, only 43% of adults were entirely calculus-free for all locations (Table 6.5), but in comparison with debris twice as many people were calculus-free as were debris-free (43% compared to 20%).

On the other hand 10% of dentate adults had an average calculus score of 2 or more, that is had more than a third of each tooth assessed involved with supragingival calculus (or some subgingival calculus), compared with only 3% of people having on average a third of each tooth assessed involved with debris (that is a score of 2 or more on debris).

Again it is difficult to give a title to the numeric ranges of the average scores and it may well be that normal function and habits do not allow debris to build up as extensively as calculus, thus restricting the extent to which the measures are comparable with each other in terms of severity. Nevertheless it is of interest to investigate the extent to which the average scores for debris and calculus vary for people with different dental habits and attitudes.

c) PERIODONTAL SCORE

The debris and calculus indicators were assessed at six chosen locations (or as many of those six as existed for each person examined). For gum condition the dentist assessed the surrounding gum tissue for each tooth still present in the mouth. Again he used a scoring system but this time the most serious conditions had higher scores, thus giving more weight to them in the calculation of a person's average periodontal score per tooth assessed.

The range of scores the dentist used were 0, 1, 2, 6 or 8 as follows:-

- 0 - Gums are not Inflamed
- 1 - Inflammation present but not circumscribing tooth
- 2 - Inflammation circumscribes the tooth
- 6 - Inflammation present, and there is a pocket of 3 mm or more in depth, but the tooth is firm in its socket
- 8 - As for '6' but the tooth is loose in its socket

The number of times this assessment was made, per person, varied according to how many teeth were present and this, of course, varied widely in different parts of the mouth. Table 6.6 overleaf shows the proportions of teeth present and then shows the range of periodontal scores for the teeth still at risk.

We see that the distribution of periodontal scores was not markedly different for the different tooth positions. There was less variation in periodontal scores for varying positions in the mouth than there had been for calculus and debris.

Less than half of the teeth at risk in any one position were free from inflammation of the gums (ie a periodontal score of zero); the more serious conditions (scores 6 and 8) were found in not more than 5% of cases for any tooth position; of the intermediate conditions, inflammation that did not circumscribe the tooth was more frequent than inflammation that did.

For each adult in the sample who still had some natural teeth it was possible to calculate an average periodontal score per tooth at risk, in a similar way to the average debris and calculus scores, and Table 6.7 gives the distribution of these average scores.

Table 6.7
AVERAGE PERIODONTAL SCORE PER TOOTH AT RISK FOR ADULTS,
OF ALL AGES, WITH SOME NATURAL TEETH

Average periodontal score per tooth at risk	Adults with some natural teeth
	%
Zero	7
Less than 0.5	22
0.5, less than 1	26
1, less than 2	31
2 or more	14
	100
Overall average	1.08
BASE	1170

Base number re-weighted.

Although nearly 40% of teeth present were free from inflammation, few dentate adults managed to keep all their teeth free from inflammation. Only 7% had a periodontal score of zero, and as many as 14% of dentate adults had an average periodontal score of two or more. Since the scoring system for periodontal condition was more complex than that for debris and calculus the value of the average is more difficult to interpret, but an average score of two requires all teeth present to have circumscribing inflammation, or the presence of sufficient pocketing to counteract the presence of any teeth which have no inflammation or

Table 6.6
PROPORTION OF TEETH AT RISK, AND PERIODONTAL SCORE FOR ADULTS OF
ALL AGES WITH SOME NATURAL TEETH

	UPPER JAW																Right			
	Left																			
	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8				
Proportion of teeth present	43%	61%	33%	60%	64%	79%	71%	77%	78%	73%	79%	62%	57%	32%	60%	44%				
0	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		
Periodontal	39	36	35	43	39	42	45	46	43	37	41	43	43	40	39	43				
scores for	39	44	45	40	44	40	39	39	39	40	40	38	40	38	40	39	35			
teeth at risk	1	17	16	18	14	17	15	14	15	16	16	14	16	18	17	17				
6	5	4	2	3	2	3	2	2	3	2	3	2	3	2	4	5				
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
BASES - Number of teeth at risk	504	711	384	701	743	919	832	902	910	854	922	731	673	372	700	512				
	Left								LOWER JAW								Right			
	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8				
Proportion of teeth present	38%	55%	26%	68%	84%	97%	96%	96%	97%	97%	97%	84%	66%	27%	56%	39%				
0	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%	%		
Periodontal	33	32	33	41	41	40	39	37	37	37	40	40	38	32	31	33				
scores for	40	45	47	38	39	38	35	35	35	35	37	38	40	46	44	36				
teeth at risk	2	22	20	18	18	20	23	25	24	24	21	20	20	22	26					
6	5	3	2	3	2	2	3	3	4	4	2	2	1	1	3	5				
8	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100		
BASES - Number of teeth at risk	445	641	305	801	979	1136	1129	1125	1132	1140	1133	984	773	321	653	451				

Base numbers re-weighted.

which have less extensive inflammation. As with the debris and calculus scores it will be interesting to examine the variation in periodontal scores with differences in dental attitude and behaviour.

d) RECESSION

As with the periodontal score recession was assessed for every tooth still present. The assessment for recession was based on whether or not the gingival margin was 3 millimetres or more from the enamel margin at any point around the tooth. Table 6.8 gives the results of this part of the dental examination for the different tooth positions (the proportions of teeth present for each position are the same as shown in Table 6.6).

Recession of the gums was relatively infrequent, being recorded for only 6% of all teeth examined. It was slightly more common around lower jaw anterior teeth and upper jaw posterior teeth than other locations but the variations were not very marked. Table 6.9 gives the distribution of the number of teeth with gum recession, for all dentate adults.

Table 6.9
DISTRIBUTION OF THE NUMBER OF TEETH WITH RECESSED GUMS
FOR ADULTS, OF ALL AGES, WITH SOME NATURAL TEETH

Number of teeth with recessed gums	Adults with some natural teeth
	%
0	70
1-5	21
6-11	7
12 or more	2
	<hr/> 100
BASE	1170

Base number re-weighted.

A large proportion (70%) of dentate adults had no gum recession at all. About a fifth had between one and five teeth with recession and nearly a tenth had 6 or more teeth with recession.

e) PERIODONTAL EXTRACTION

As a final indicator of periodontal condition the dental examiners were asked to examine each tooth present to see whether or not it should be extracted for periodontal reasons. In their assessment they took into account the periodontal score and the situation with respect to recession*. In essence this meant that a tooth classified as in need of extraction for periodontal reasons would be loose in its socket. Of all the 24,518 teeth examined only 164 (0.7%) were classified as in need of periodontal extraction. This compares to 1.9% of all teeth at risk which were decayed and found to be unrestorable by routine filling methods. In terms of the dentate adults in the sample only 5% had any teeth that were classified as in need of extraction for periodontal reasons. This compares with 18% who had at least one tooth that was unrestorable due to decay (see Table 5.2).

*See dental criteria in the appendix.

Table 6.8
RECESSION OF THE GUMS FOR ADULTS, OF ALL AGES, WITH SOME NATURAL TEETH

	UPPER JAW														LOWER JAW													
	Left							Right							Left							Right						
	8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8											
Gums recessed	%	%	%	%	%	%	%	%		%	%	%	%	%	%	%	%											
Not recessed	5	7	9	6	5	7	2	3		4	4	5	4	5	7	8	6											
	95	93	91	94	95	93	98	97		96	96	95	96	95	93	92	94											
	100	100	100	100	100	100	100	100		100	100	100	100	100	100	100	100											
BASES - Number of teeth at risk	504	711	384	701	743	919	832	902		910	854	922	731	673	372	700	512											
	Left							Right							Left							Right						
	8	7	6	5	4	3	2	1		1	2	3	4	5	6	7	8											
Gums recessed	%	%	%	%	%	%	%	%		%	%	%	%	%	%	%	%											
Not recessed	4	5	5	7	7	7	6	10		10	8	8	7	7	6	5	4											
	96	95	95	93	93	93	94	90		90	92	92	93	93	94	95	96											
	100	100	100	100	100	100	100	100		100	100	100	100	100	100	100	100											
BASES - Number of teeth at risk	445	641	305	801	979	1136	1129	1125		1132	1140	1133	984	773	321	653	451											

Base numbers re-weighted.

f) OCCLUSION and BITE

The effectiveness of natural teeth in carrying out the functions required of them for eating depends upon their relationship to each other. We obtained three measures of this relationship. Firstly, for each natural lower tooth present, the dentist recorded whether it was in occlusion with any natural upper teeth when the back teeth were closed together in their normal position. Secondly the dentist measured the extent to which the front upper teeth covered the front lower teeth in a vertical direction, and thirdly how far the front upper teeth were in front of the front lower teeth in a horizontal direction.

The number of lower natural teeth in occlusion with upper teeth depends partly on the level of tooth loss. We would expect those people with partial dentures, therefore, to have fewer teeth in occlusion, and in Table 6.10 we give the number of lower natural teeth in occlusion for these people separately as well as for all adults with some natural teeth.

Table 6.10
DISTRIBUTION OF THE NUMBER OF LOWER NATURAL TEETH IN
OCCLUSION WITH UPPER NATURAL TEETH FOR ADULTS, OF ALL
AGES, WITH SOME NATURAL TEETH

Number of lower natural teeth in occlusion with upper natural teeth	Adults who rely wholly on natural teeth	Adults with some natural teeth who have a denture	All adults with some natural teeth
	%	%	%
0	1	44	16
1-2	-	4	2
3-5	6	12	8
6-8	22	20	21
9-11	32	17	27
12-14	37	3	25
15-16	2	-	1
	100	100	100
BASES	760	410	1170

Base numbers re-weighted.

The number of lower natural teeth in occlusion with upper natural teeth was, of course, markedly different for adults who had some dentures and those who did not. Among those who had dentures 44% had no lower natural teeth which came into occlusion with upper natural teeth. This was obviously influenced by the prevalence of full upper clearance. Even among the adults who relied entirely upon natural teeth 29% had half or fewer of their lower teeth in occlusion with upper natural teeth.

The number of lower teeth in occlusion depends not only on how many natural teeth are still present but also on whether the shape of the mouth allows the teeth to meet together. One indicator of this with respect to anterior teeth is the measurement of overbite and overjet.

Overbite and overjet could only be measured if at least one pair of anterior central incisors was present in the upper and lower jaws. This meant that for many of the adults who had a combination of natural teeth and dentures the measurements of overbite and overjet could not be obtained. Table 6.11 gives the distribution of overbite and overjet, separately for dentate adults who had a denture and those who did not.

Although for many of the adults who had a combination of natural teeth and dentures these measurements were unobtainable those who were measured had a very similar distribution of overbite and overjet to those adults who had never had dentures. This suggests that the acquisition of dentures which involve front teeth had very little direct relationship with the size of overjet and overbite.

Table 6.11
OVERBITE AND OVERJET FOR ADULTS OF ALL AGES WITH SOME NATURAL TEETH

Measurements unobtainable	Adults who rely wholly on natural teeth	Adults with some natural teeth who have a denture	All adults with some natural teeth
	1%	57%	20%
OVERBITE (mms) (where measureable)	%	%	%
Anterior open bite	4	1	3
Zero	5	5	5
1	9	2	4
2	7	7	9
3	17	16	17
4	21	20	20
5	20	25	21
6	11	11	11
7	4	7	5
8	2	2	2
9	1	4	2
10 or more	2	-	1
	100	100	100
OVERJET (mms) (where measureable)	%	%	%
Instanding	2	3	3
Edge to edge	3	3	3
1	9	7	9
2	26	29	26
3	25	22	25
4	15	18	16
5	8	8	8
6	4	2	3
7	3	3	3
8	2	2	2
9	1	1	1
10 or more	2	2	1
	100	100	100
BASES - those with at least one pair of anterior central incisors present	756	176	932

Base numbers re-weighted.

6.2 The Gum Condition of Dentate Adults by Age, Sex and Social Class

Table 6.12 shows that the proportion of dentate adults who had no debris did not vary with age, about one in five adults in each age group being debris-free. The proportion of people with an average debris score of one or more did vary with age, rising from 20% among those aged 16-24 to 36% among those aged 55 and over. Thus among those who retained some natural teeth there was some deterioration with age with respect to the more serious debris scores. The overall average debris score hardly varied with age, this being so because the deterioration with age in the more serious debris scores was counter-balanced by the higher proportion of younger people who had "medium" debris scores (for example the proportion who had an

average debris score of 0.5, less than 1, decreased with age from 39% among those aged 16-24 to 20% among those aged 55 and over).

With respect to calculus there was a very considerable decline with age in the proportion of dentate adults who were calculus-free. Among those aged 16-24 60% were calculus-free, but among those who were 55 and over only 28% were calculus-free. As with debris, the proportion of people with a score of one or more increased considerably over the age groups; 12% of those aged 16-24 had a calculus score of one or more compared with 26% among those aged 25-34, 33% among those aged 35-44, 45% among those aged 45-54, and 42% among those aged 55 and over. This was a considerable increase when one remembers that in the middle and older age groups more people have become edentulous and thus been excluded, leaving, presumably, the more dentally fit. This worsening of the situation with respect to calculus is reflected in the overall average calculus score which increases from 0.30 among the youngest group to 0.93 among those aged 55 and over.

We saw in Section 6.1 that in terms of the periodontal score (which was based for its lowest scores on inflammation) only 7% of people with some natural teeth were completely free from trouble. It is perhaps of more interest to examine the higher scores (which are the result of more serious periodontal conditions or widespread inflammation). Among the younger age groups an average periodontal score per tooth of two or more was fairly uncommon, only 3% of those aged 16-24 and 8% of those aged 25-34 having this amount of involvement. After this age, however, the proportion with an average score of two or more was found to be much higher, being 20% among those aged 35-44, 27% among those aged 45-54 and 39% among those aged 55 and over.

By the age group 35-44 over half of those who still had some natural teeth had an average periodontal score of one or more per tooth. As with the calculus score it is in the age group 35-44 that the serious scores begin to occur more frequently. Again the position with regard to periodontal conditions can be summarised by looking at the overall average score which increases from 0.67 to 2.12, a threefold increase from the youngest to the oldest age groups.

The number of people who were found to have teeth with gum recession was, again, fairly low in the youngest age groups. Overall, 30% of people with some natural teeth had some gum recession and this varied from 5% to 19% to 38% to 66% to 78% over the five age groups. It was in the oldest two age groups, that is 45-54 and 55 and over that relatively extensive gum recession was found, these groups of people having on average 3.0 and 4.0 teeth with gum recession. The proportions with 6 or more teeth with recessed gums were 21% and 28% respectively for these two age groups.

The last section of the table deals with the number of teeth considered to be in need of extraction for periodontal reasons, that is, teeth which were grossly periodontally involved and loose in their sockets. Only in the oldest age group (55 and over) was there an appreciable proportion (24%) of people who had any teeth which needed extraction for periodontal reasons; yet even these oldest people had, on average, less than one tooth in this condition.

Table 6.12

ORAL HYGIENE AND GUM CONDITION SCORES FOR ADULTS OF DIFFERENT AGES

	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
DEBRIS SCORE*	%	%	%	%	%	%
No assessment	1	-	1	-	6	1
Zero	18	20	20	23	25	20
Less than 0.5	22	20	22	16	13	20
0.5, less than 1	39	34	27	24	20	31
1, less than 2	18	25	26	33	33	25
2 or more	2	1	4	4	3	3
	100	100	100	100	100	100
Overall average	0.57	0.67	0.61	0.68	0.59	0.62
CALCULUS SCORE*	%	%	%	%	%	%
No assessment	1	-	1	-	6	1
Zero	60	40	36	31	28	43
Less than 0.5	17	18	14	10	7	15
0.5, less than 1	10	16	16	14	17	14
1, less than 2	8	21	19	26	20	17
2 or more	4	5	14	19	22	10
	100	100	100	100	100	100
Overall average	0.30	0.56	0.72	0.92	0.93	0.59
PERIODONTAL SCORE*	%	%	%	%	%	%
No assessment	-	-	-	-	1	**
Zero	9	6	6	5	5	7
Less than 0.5	32	23	19	11	8	22
0.5, less than 1	33	29	22	19	8	26
1, less than 2	23	34	33	38	39	31
2 or more	3	8	20	27	39	14
	100	100	100	100	100	100
Overall average	0.67	0.89	1.26	1.52	2.12	1.08
RECESSION	%	%	%	%	%	%
None	95	81	62	34	22	70
1-5 teeth	3	14	31	45	50	21
6-11 teeth	2	4	6	17	22	7
12 or more	-	1	1	4	6	2
	100	100	100	100	100	100
Average number of teeth with recession	0.2	0.8	1.4	3.0	4.0	1.3
NEED FOR PERIODONTAL EXTRACTION	%	%	%	%	%	%
None	100	99	94	93	76	95
1 or 2 teeth	-	1	4	4	11	3
3 or more	-	-	2	3	13	2
	100	100	100	100	100	100
Average number of teeth in need of periodontal extraction	0.0	0.0	0.2	0.2	0.8	0.1
BASES	382	297	234	152	104	1170

Base numbers re-weighted.

*Average score, per person per tooth at risk.

**Less than 0.5%.

It has been stated^{*} that beyond the age of 35 more teeth are lost for periodontal reasons than for reasons of decay. Our survey estimates suggest that beyond the age of 35, among those teeth which require to be extracted for disease reasons, approximately the same number require to be extracted because they are unrestorable as require to be extracted for periodontal disease (see Table 5.9 compared with Table 6.12). Decay and periodontal disease are not, of course, the only reasons for tooth loss, treatment reasons (eg the provision of dentures) also play a part. Reasons for extraction, including non-disease reasons, are discussed in greater detail in Chapter 10.

We examined the gum conditions separately for men and women. Men had, on average, higher debris scores, higher calculus scores and higher periodontal scores. They had more teeth with gum recession (in fact men had twice as much gum recession as women), but men and women had a similar number of teeth classified as in need of extraction for periodontal reasons. Since we have seen earlier that women tend to lose their teeth at a younger age, we also examined the sex differences taking age into account (Table 6.13). The differences in gum condition between the sexes are generally apparent in each age group.

We also examined the results to see if there was any association between gum condition and social class (Table 6.14). Again we used just three divisions of social class: social class I, II and III non-manual grouped together, social class III manual, and thirdly social class IV and V.

In terms of debris the proportion of people free from debris was fairly constant over the three social class groups, but the more serious debris scores were more frequent in the lower social class groups. For example the proportion of people with an average debris score of one or more increased from 20% to 37% over the three social class groups. This difference is reflected in the overall average debris score which increases from 0.52 to 0.79.

For the calculus score a similar pattern was evident, but here not only were the more serious scores more frequent in the lower social class groups but the proportion of people who were calculus-free also varied. In the top social class group (I, II and III non-manual together) over half (53%) of adults were calculus-free, this proportion falling to 40% and 36% in the other two social class groups. The proportions of people with an average calculus score of one or more were 19% in the top social class group, 30% in the intermediate group (III manual) and 31% in the third group (IV and V). The overall average increased from 0.44 to 0.65 to 0.73 over the three groups.

The overall average periodontal score showed a similar variation with social class, increasing from 0.94 to 1.14 to 1.15 over the three groups. This was due mainly to the more serious periodontal scores being somewhat more frequent in the lower social class groups (the proportion of people who were free from any periodontal involvement was fairly constant).

The position with regard to gum recession and periodontal extraction was virtually the same in each of the three social class groups.

^{*} eg A. Sheiham : An evaluation of the success of dental care in the United Kingdom (British Dental Journal, Vol. 135 No. 6 Page 273).

Table 6.13
ORAL HYGIENE AND GUM CONDITION SCORES FOR DIFFERENT AGES AND SEXES

	Adults with some natural teeth													
	Present age												All ages M F	
	16-24		25-34		35-44		45-54		55 and over					
	M	F	M	F	M	F	M	F	M	F				
DEBRIS SCORE*														
No assessment														
Zero	1	1	1	-	2	1	-	-	10	3	2	1		
Less than 0.5	17	20	17	23	14	26	19	28	26	23	18	23		
0.5, less than 1	20	24	16	23	18	26	14	18	12	15	17	23		
1, less than 2	36	40	35	33	29	24	22	28	16	24	30	32		
2 or more	25	12	30	19	33	19	40	24	32	33	30	18		
	1	3	1	2	4	4	5	2	4	2	3	3		
	100	100	100	100	100	100	100	100	100	100	100	100		
Overall average	0.60	0.55	0.76	0.58	0.70	0.51	0.78	0.54	0.61	0.58	0.69	0.55		
CALCULUS SCORE*														
No assessment	1	1	1	-	2	1	-	-	10	3	2	1		
Zero	58	62	31	49	33	40	23	42	30	26	39	49		
Less than 0.5	19	15	20	16	14	14	9	12	7	6	16	14		
0.5, less than 1	11	10	20	11	16	15	18	8	14	20	15	12		
1, less than 2	7	9	23	20	22	16	31	19	15	26	18	15		
2 or more	4	3	5	4	13	14	19	19	24	19	10	9		
	100	100	100	100	100	100	100	100	100	100	100	100		
Overall average	0.30	0.29	0.66	0.46	0.81	0.63	1.01	0.79	0.90	0.97	0.65	0.52		
PERIODONTAL SCORE*														
No assessment	-	-	-	-	-	-	-	-	2	-	**	-		
Zero	10	9	4	9	5	6	3	8	6	4	6	8		
Less than 0.5	28	35	19	27	14	24	7	15	10	6	19	26		
0.5, less than 1	32	33	33	24	22	22	20	18	4	12	26	25		
1, less than 2	27	20	36	33	35	32	40	35	31	48	33	30		
2 or more	3	3	8	7	24	16	30	24	47	30	16	11		
	100	100	100	100	100	100	100	100	100	100	100	100		
Overall average	0.70	0.63	0.94	0.83	1.41	1.09	1.65	1.33	2.32	1.91	1.19	0.96		
RECESSION														
None	94	95	79	84	53	73	23	50	17	27	65	77		
1-5 teeth	3	4	15	13	36	23	50	37	49	51	24	18		
6-11 teeth	2	1	4	3	9	3	20	13	23	22	8	5		
12 or more	1	-	2	-	2	1	7	-	11	-	3	-		
	100	100	100	100	100	100	100	100	100	100	100	100		
Average number of teeth with recession	0.3	0.2	1.0	0.5	2.0	0.8	3.9	1.9	4.9	3.1	1.8	0.8		
NEED FOR PERIODONTAL EXTRACTION														
None	100	100	98	99	94	94	95	90	73	79	95	96		
1 or 2 teeth	-	-	1	1	4	3	3	6	11	10	3	2		
3 or more	-	-	1	-	2	3	2	4	16	11	2	2		
	100	100	100	100	100	100	100	100	100	100	100	100		
Average number of teeth in need of periodontal extraction	0.0	0.0	0.0	0.0	0.2	0.2	0.1	0.3	1.1	0.1	0.2	0.1		
BASES	186	197	149	149	124	110	87	65	55	49	601	569		

Base numbers re-weighted.

* Average score, per person per tooth at risk.

** Less than 0.5%.

Table 6.14

ORAL HYGIENE AND GUM CONDITION SCORES FOR DIFFERENT SOCIAL CLASS GROUPS

	Adults with some natural teeth			
	Household Social Class			All [#] Social Classes
	I, II and III non- manual	III manual	IV non- manual, IV manual and V	
DEBRIS SCORE*	%	%	%	%
No assessment	1	1	2	1
Zero	23	18	17	20
Less than 0.5	22	20	15	20
0.5, less than 1	34	32	29	31
1, less than 2	18	27	32	25
2 or more	2	2	5	3
	—	—	—	—
	100	100	100	100
Overall average	0.52	0.64	0.79	0.62
CALCULUS SCORE*	%	%	%	%
No assessment	1	1	2	1
Zero	53	40	36	43
Less than 0.5	13	15	15	15
0.5, less than 1	14	14	16	14
1, less than 2	13	19	19	17
2 or more	6	11	12	10
	—	—	—	—
	100	100	100	100
Overall average	0.44	0.65	0.73	0.59
PERIODONTAL SCORE*	%	%	%	%
No assessment	—	—	—	—
Zero	9	6	5	7
Less than 0.5	25	20	22	22
0.5, less than 1	27	26	25	26
1, less than 2	31	33	29	31
2 or more	8	15	19	14
	—	—	—	—
	100	100	100	100
Overall average	0.94	1.14	1.15	1.08
RECESSION	%	%	%	%
None	68	72	71	70
1-5 teeth	20	22	21	21
6-11 teeth	9	5	7	7
12 or more	3	1	1	2
	—	—	—	—
	100	100	100	100
Average number of teeth with recession	1.6	1.1	1.3	1.3
NEED FOR PERIODONTAL EXTRACTION	%	%	%	%
None	96	96	94	95
1 or 2 teeth	2	2	3	3
3 or more	2	2	3	2
	—	—	—	—
	100	100	100	100
Average number of teeth in need of periodontal extraction	0.1	0.1	0.2	0.1
BASES	367	470	255	1170

Base numbers re-weighted.

[#] Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

* Average score, per person per tooth at risk.

We have already seen that there were quite considerable variations with age so we now look at a summary of the gum conditions both for social class and for different age groups. As summary measures we use the overall average score for debris, calculus, and periodontal trouble, the proportion of people with some gum recession, and the proportion of people who had some teeth in need of extraction for periodontal reasons (Table 6.15).

Within each age group the average debris score shows the same pattern of variation with social class. There is a similar variation for the average calculus score, but there is less consistency for the periodontal score (although the top social class group had a lower average periodontal score than the other two social class groups, in each age group).

The variations with age in the proportion of people with some gum recession and the proportion with some need of periodontal extraction, are so great that the social class variation is much better illustrated when looking at the age groups separately. In terms of recession, it would appear that after the age of 35, people in the top social class group are in a somewhat more favourable position, but of course combining age and social class results in fairly small base numbers. The base numbers would need to be greater to demonstrate the more favourable position of the top social class group conclusively. There is a similar result for periodontal extraction, in that the top social class group would appear to be in a generally more favourable position in each of the age groups.

6.3 The Gum Condition of Dentate Adults by Dental Attendance Pattern

Earlier we discussed the relationship between decay and its treatment and dental attendance, and we found that the overall condition of the natural teeth was very much related to attendance pattern. Those people who chose to go to the dentist for a regular check-up had much more evidence of restorative dental treatment than other people. In this section we examine whether a similar relationship exists between the condition of the gums and dental attendance pattern, in other words whether the choice to go to the dentist regularly or otherwise is associated with the condition of people's gums.

Before looking at the results it is worth considering the ways in which the various aspects of the gum condition may be related to dental attendance, and we firstly consider debris. Soft debris consists of bacteria and food deposits around the teeth and can build up over a short period of time, that is days rather than weeks. We might therefore expect the extent of debris to be less directly related to attendance pattern and more related to other factors, in particular the frequency of tooth brushing (we look in detail at tooth brushing in Chapter 13). Calculus, on the other hand, is probably more affected by intervention by the dentist, since once calculus has built up on the teeth it can only be removed professionally. Those people who attend the dentist regularly do, of course, have a much greater opportunity to have any calculus removed, by having a "scale and polish", and one might therefore expect the calculus indicator to be associated with attendance pattern. The relationship between periodontal involvement and dental attendance may be less straightforward, since it is likely that attendance pattern and personal dental habits both play a role. For example, adequate tooth brushing can probably reduce the amount of inflammation

Table 6.15

SUMMARY INDICATORS OF ORAL HYGIENE AND GUM CONDITIONS
FOR DIFFERENT AGES AND SOCIAL CLASSES

	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
OVERALL AVERAGE DEBRIS SCORE						
SC I, II, III non-manual	0.56	0.41	0.55	0.53	0.53	0.52
SC III manual	0.59	0.68	0.61	0.70	0.65	0.64
SC IV and V	0.66	0.93	0.78	0.88	0.76	0.79
All*	0.57	0.67	0.61	0.68	0.59	0.62
OVERALL AVERAGE CALCULUS SCORE						
SC I, II, III non-manual	0.25	0.33	0.50	0.64	0.66	0.44
SC III manual	0.33	0.61	0.83	1.10	1.23	0.65
SC IV and V	0.29	0.76	0.94	1.16	1.25	0.73
All*	0.30	0.56	0.72	0.92	0.93	0.59
OVERALL AVERAGE PERIODONTAL SCORE						
SC I, II, III non-manual	0.63	0.62	0.99	1.18	1.77	0.94
SC III manual	0.72	0.98	1.40	1.90	2.26	1.14
SC IV and V	0.68	0.96	1.39	1.63	2.39	1.15
All*	0.67	0.89	1.26	1.52	2.12	1.08
PROPORTION WITH SOME RECESSON						
SC I, II, III non-manual	7%	21%	33%	58%	72%	32%
SC III manual	5%	19%	40%	72%	89%	28%
SC IV and V	6%	20%	40%	67%	72%	29%
All*	5%	19%	38%	66%	78%	30%
PROPORTION WITH SOME NEED FOR PERIODONTAL EXTRACTION						
SC I, II, III non-manual	-	-	3%	7%	18%	4%
SC III manual	-	1%	6%	8%	36%	4%
SC IV and V	-	4%	10%	6%	33%	6%
All*	-	1%	6%	7%	24%	5%
BASE NUMBERS						
SC I, II, III non-manual	109	78	73	60	47	367
SC III manual	153	145	99	52	22	470
SC IV and V	86	66	50	34	19	255
All*	382	297	234	152	104	1170

Base numbers re-weighted.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

Irrespective of whether the person goes to the dentist for a regular check-up, but regular attenders may be more likely to be encouraged by the dentist to look after their gums while also having a greater chance of having any serious periodontal conditions rectified.

Table 6.16 gives the condition of the gums for the different attendance patterns, and we examine each of the aspects of gum condition in turn. In terms of debris there was some variation with dental attendance, in that debris was somewhat more common among those who only went to the dentist when having trouble. The variation in the proportion of people who were debris-free was not very marked (25% of the regular attenders were debris-free compared to 19% of the occasional attenders and 18% of the irregular attenders), but the more serious debris scores were much more common among the irregular attenders (the proportions having an average debris score of one or more were 15%, 20% and 37% over the three attendance groups). This difference is reflected in the overall average debris score, which was 0.50, 0.57 and 0.71 over the three groups.

As we expected, there was more variation with dental attendance in the presence of calculus. The proportions calculus-free were 54%, 44% and 37% over the three attendance groups, and the proportions having an average calculus score of one or more were 17%, 22% and 34% respectively. The range of the overall average calculus score was 0.40 to 0.50 to 0.73 over the three attendance groups.

For the periodontal score it was the regular dental attenders who were again the lowest scorers, although even among the regular attenders only a small proportion were free from periodontal involvement. One in ten (10%) of the regular attenders had no periodontal involvement, compared to 8% of the occasional attenders and 5% of the irregular attenders. For the more serious scores, under one third (32%) of the regular attenders had an average periodontal score of one or more, compared to 36% of the occasional attenders and 56% of the irregular attenders. The overall average periodontal score ranged from 0.78 to 0.92 to 1.30 over the three attendance groups. We have seen earlier that age was of particular importance in relation to periodontal involvement; the amount of involvement increasing markedly with age. We were interested to see how much, if any, of the variation of periodontal involvement with dental attendance was due to age (for example the regular attenders being younger on the whole than other people). In fact the periodontal involvement varied with dental attendance in each age group.

The number of teeth with recession and the number of teeth in need of periodontal extraction (given in the last two sections of Table 6.16) were both more common among those who only went to the dentist when having trouble.

Attendance pattern is, therefore, of considerable importance in relation to the condition of the gums, but the relationship is not necessarily a direct one resulting from the actual attendance at the dentist. It is likely that other factors which determine attendance pattern, such as dental awareness and general attitudes towards oral hygiene, also affect personal habits which determine the condition of the gums. In circumstances where overall attitudes are affecting both personal habits (such as tooth cleaning) and dental attendance pattern it is very difficult to disentangle the direct relationship of tooth cleaning with dental health and dental attendance with dental health. A more detailed examination of tooth cleaning will be found in Chapter 13.

Table 6.16

ORAL HYGIENE AND GUM CONDITION SCORES FOR DIFFERENT ATTENDANCE PATTERNS

	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when having trouble	All
DEBRIS SCORE*	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>
No assessments	1	1	1	1
Zero	25	19	18	20
Less than 0.5	24	21	16	20
0.5, less than 1	35	39	28	31
1, less than 2	14	18	33	25
2 or more	1	2	4	3
	<hr/>	<hr/>	<hr/>	<hr/>
	100	100	100	100
Overall average	0.50	0.57	0.71	0.62
CALCULUS SCORE*	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>
No assessments	1	1	1	1
Zero	54	44	37	43
Less than 0.5	16	18	13	15
0.5, less than 1	12	15	15	14
1, less than 2	12	14	21	17
2 or more	5	8	13	10
	<hr/>	<hr/>	<hr/>	<hr/>
	100	100	100	100
Overall average	0.40	0.50	0.73	0.59
PERIODONTAL SCORE*	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>
No assessments	-	-	-	-
Zero	10	8	5	7
Less than 0.5	29	26	17	22
0.5, less than 1	29	30	22	26
1, less than 2	26	22	38	31
2 or more	6	14	18	14
	<hr/>	<hr/>	<hr/>	<hr/>
	100	100	100	100
Overall average	0.78	0.92	1.30	1.08
RECESSION	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>
None	76	73	66	70
1-5 teeth	16	19	25	21
6-11 teeth	6	7	7	7
12 or more	2	1	2	2
	<hr/>	<hr/>	<hr/>	<hr/>
	100	100	100	100
Average number of teeth with recession	1.2	1.2	1.4	1.3
NEED FOR PERIODONTAL EXTRACTION	<i>N</i>	<i>N</i>	<i>N</i>	<i>N</i>
None	98	96	94	95
1 or 2 teeth	1	3	3	3
3 or more	1	1	3	2
	<hr/>	<hr/>	<hr/>	<hr/>
	100	100	100	100
Average number of teeth in need of periodontal extraction	0.1	0.1	0.2	0.1
BASES	389	157	623	1170**

Base numbers re-weighted.

*Average score, per person per tooth at risk.

**Includes one person who had never been to a dentist.

We have already seen that social class is related to the condition of the gums, the higher social classes having a better gum condition on the whole than the lower social classes. It is of value to look at the condition of the gums in relation to social class and attendance pattern to see if these two variables are acting independently and if so, which seems to be the more important in determining gum condition. If social class and dental attendance are indeed acting independently then we would expect the best gum conditions to exist among the regular attenders in the top social class group, and the worst among the irregular attenders of the lowest social class group. This is in fact the case, as is seen in Table 6.17 (the table gives a summary of the overall average debris, calculus and periodontal scores for different social classes and attendance patterns). The overall average debris score ranged from 0.48 among the regular attenders of the top social class group to 0.82 among the irregular attenders of the lowest social class group. Social class and dental attendance looked at separately had a similar effect, the overall average debris score ranging from 0.52 to 0.79 over the different social classes and from 0.50 to 0.71 over the different attendance patterns. There was a similar situation in terms of calculus, the overall average calculus score ranging from 0.38 among the regular attenders of the top social class group to 0.87 among the irregular attenders of the lowest social class group. As with debris, social class and dental attendance looked at separately had a similar overall effect, the ranges of the overall average calculus score being 0.44 to 0.73 and 0.40 to 0.73 respectively. The range for the overall average periodontal score was from 0.78 among the regular attenders of the top social class group to 1.30 among the irregular attenders of the lowest social class group. In the case of periodontal involvement dental attendance appeared to be more important than social class; the overall average periodontal score ranged from 0.78 to 1.30 over the three attendance groups compared to a narrower range (0.94 to 1.15) over the three social class groups. In fact among the regular attenders, those people in the lowest social class group were maintaining as low periodontal scores as people in the top social class group.

We have, in this chapter, examined the overall gum condition of adults in Scotland, and have looked at the variation of gum condition according to age, sex, social class and dental attendance pattern. Except for debris, age was a very important factor indeed, it being after the age of 35 that the more serious scores occurred fairly frequently. Regular dental attenders were found to be in a more favourable situation than irregular attenders with respect to gum condition, although this relationship was probably influenced more by the overall attitudes which led to the attendance pattern than to any direct intervention by the dentist. Social class also influenced the situation for some conditions, but for the periodontal score attendance was more important.

Improvements in dental health in terms of both decay (and its treatment) and gum condition are thus dependent to an extent upon changes in attitudes to dentistry and oral hygiene.

Table 6.17

SUMMARY INDICATORS OF ORAL HYGIENE AND GUM CONDITIONS
BY ATTENDANCE PATTERN AND SOCIAL CLASS

	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when having trouble	All
OVERALL AVERAGE DEBRIS SCORE				
SC I, II, III non-manual	0.48	0.56	0.56	0.52
SC III manual	0.48	0.57	0.72	0.64
SC IV and V	0.75	0.68	0.82	0.79
All*	0.50	0.57	0.71	0.62
OVERALL AVERAGE CALCULUS SCORE				
SC I, II, III non-manual	0.38	0.34	0.55	0.44
SC III manual	0.44	0.65	0.74	0.65
SC IV and V	0.37	0.53	0.87	0.73
All*	0.40	0.50	0.73	0.59
OVERALL AVERAGE PERIODONTAL SCORE				
SC I, II, III non-manual	0.78	0.85	1.20	0.94
SC III manual	0.81	1.04	1.31	1.14
SC IV and V	0.74	0.99	1.30	1.15
All*	0.78	0.92	1.30	1.08
BASE NUMBERS				
SC I, II, III non-manual	188	52	127	367
SC III manual	123	61	286	470
SC IV and V	50	31	174	255
All*	389	157	623	1170

Base numbers re-weighted.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

7 The Provision of Dentures in Conjunction With Natural Teeth

Although some people make the change from relying on only natural teeth to relying on full dentures in one step, many people pass through a transitional stage where their remaining natural teeth are augmented by the provision of dentures. These dentures vary very widely in the numbers of teeth they replace, ranging from a single tooth to a full upper and partial lower denture.

7.1 The Range of Natural Tooth Replacement by Dentures

Among dentate adults in Scotland a considerable proportion (35%[#]) had been fitted with a denture of some kind, and in Table 7.1 we show the range of replacement that had taken place.

Table 7.1
THE RANGE OF REPLACEMENT BY DENTURES

Denture pattern	All adults	All dentate adults	Dentate adults with dentures
	%	%	%
No dentures	36	65	3
Full upper, partial lower	20	6	16
Full upper, no lower		9	26
Partial upper, partial lower		4	10
Partial upper, no lower		15	44
Partial upper, full lower		*	1
No upper, partial lower	1	1	2
No upper, full lower		*	1
No natural teeth	44	100	100
	100		
BASES	2076	1170	410

Base numbers re-weighted.

*Less than 0.5%.

Table 7.1 shows that among adults who had dentures in conjunction with natural teeth, 97% had an upper denture of some sort, whereas only 30% had a lower denture. By far the most common situation was a partial upper denture and no lower denture. A high proportion, 42%, of partially-dentured people had a full denture in the upper jaw, that is 15% of all dentate adults had a full upper denture.

[#]The 35% in Chapter 5 referred to all people interviewed; among those who were dentally examined, slightly fewer proportionately had been fitted with a denture.

We saw in Chapter 5 that the level of tooth loss among those with some natural teeth varied with age, sex and social class, and we would therefore expect the provision of dentures to vary with these factors also. The range of replacement for adults of different ages, sexes and social classes is given in Tables 7.2-7.4. While the main part of each table shows the variation in the range of provision for those with dentures (ie the 410 people shown in Table 7.1), at the foot of each table we also give the overall proportion of dentate adults who have dentures.

Table 7.2
THE RANGE OF REPLACEMENT BY DENTURES FOR ADULTS OF DIFFERENT AGES

Denture pattern	Adults with some natural teeth who have a denture					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
Full upper, partial lower	-	12	18	20	25	16
Full upper, no lower	15	18	25	35	36	26
Partial upper, partial lower	2	9	15	12	6	10
Partial upper, no lower	83	60	38	26	30	44
Partial upper, full lower	-	-	1	2	-	1
No upper, partial lower	-	1	3	3	3	2
No upper, full lower	-	-	-	2	-	1
	100	100	100	100	100	100
BASES - dentate adults who have a denture	49	92	109	90	70	410
Proportion of all dentate adults who have a denture	13%	31%	47%	58%	68%	35%

Base numbers re-weighted.

As we would expect, the overall proportion of dentate adults who had been fitted with a denture increased steadily with age, from 13% among those aged 16-24, to 68% among those aged 55 and over. Amongst the two youngest age groups the most common denture situation was a partial denture in the upper jaw and no denture in the lower. As we look at older age groups the level of replacement increases, the most common situation becoming a full denture in the upper jaw. There are, however, considerable numbers of denture wearers who have a full upper denture even among the younger adults (the proportions of denture wearers having a full upper denture are 15% and 30% respectively in the two youngest age groups). It is interesting that the proportion of partially-dentured people who have a full upper denture opposing only natural teeth in the lower jaw exceeds, in each age group, the proportion for whom the full upper denture opposes a partial denture in the lower jaw, and in Chapter 9 we shall see that there is a potential need for lower dentures among this former group.

We have already had indications in Chapters 4 and 5 of higher levels of tooth loss among women, and we next look at the denture pattern for men and women separately. Table 7.3 shows that among adults with some natural teeth proportionately more women have been fitted with a denture than men (39%

compared to 31%). In terms of denture pattern the differences between the sexes are that slightly fewer women have a partial upper denture only, and more have a full upper denture only. These differences are exhibited in each age group, but are particularly marked in the age group 16-34; we see that among these youngest denture wearers 32% of women have been fitted with a full upper denture compared to only 13% of men. It is interesting that this 32% includes 24% where there is no lower denture provided; this suggests that some of the factors which affect total tooth loss may also affect upper jaw clearance, and that partial clearance should not be overlooked as another indicator of the level of dental achievement attained.

Table 7,3
THE RANGE OF REPLACEMENT BY DENTURES FOR ADULTS OF DIFFERENT AGES AND SEXES

Denture pattern	Adults with some natural teeth who have a denture							
	Present age						All ages	
	16-34		35-54		55 and over		All ages	
	M	F	M	F	M	F	M	F
Full upper, partial lower	8	8	15	22	30	19	16	16
Full upper, no lower	5	24	27	31	31	42	21	30
Partial upper, partial lower	7	7	17	11	4	8	11	9
Partial upper, no lower	80	60	37	29	32	28	48	40
Partial upper, full lower	-	-	1	2	-	-	1	1
No upper, partial lower	-	1	2	4	3	3	2	3
No upper, full lower	-	-	1	1	-	-	1	1
	100	100	100	100	100	100	100	100
BASES - dentate adults who have a denture	55	85	95	103	37	34	188	222
Proportion of all dentate adults who have a denture	16%	25%	45%	59%	68%	68%	31%	39%

Base numbers re-weighted.

In the age group 35-54 over half (53%) of dentate women who had been fitted with dentures had a full upper jaw clearance; this compares with 42% for men. Although the base numbers are small for those aged 55 and over, it would appear that by this age men and women are in a similar position with respect to full upper dentures (the proportion with a full upper denture is 61% both for men and women).

We next look, in Table 7.4, at the relative positions of the different social classes with respect to denture pattern. Although we have found earlier in the report that there were quite considerable social class differences in total tooth loss and in the condition of the natural teeth, the partial denture situation is virtually the same for each of the three social class groups. Not only is the proportion who have a denture constant throughout the groups, but the denture pattern among those who have a denture is the same for each social class group. Thus even in the top social class group, where we might have expected to find less replacement by dentures, just under one third (32%) of those with some natural

teeth have a denture, and for 43% of these denture wearers there is a full clearance of the upper jaw.

Table 7.4
THE RANGE OF REPLACEMENT BY DENTURES FOR DIFFERENT SOCIAL CLASSES

Denture pattern	Adults with some natural teeth who have a denture			
	Household Social Class			All* social classes
	I, II and III non-manual	III manual	IV non-manual IV manual and V	
	%	%	%	%
Full upper, partial lower	18	15	17	16
Full upper, no lower	25	25	27	26
Partial upper, partial lower	10	12	6	10
Partial upper, no lower	43	44	48	44
Partial upper, full lower	-	2	-	1
No upper, partial lower	4	1	1	2
No upper, full lower	-	1	1	1
	100	100	100	100
BASES - dentate adults who have a denture	119	174	86	410
Proportion of all dentate adults who have a denture	32%	37%	34%	35%

Base numbers re-weighted.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

7.2 The Examination Assessment of Dentures

Among dentate adults who had been fitted with dentures the vast majority (91%) of upper dentures were available for examination, but under three quarters (73%) of lower dentures were available. These figures suggest, and we shall see later (Section 7.3), that it was much more frequently the lower denture which was not currently worn.

In the following tables, as well as giving the situation separately for upper and lower dentures we also give the results separately according to whether the upper denture was a full upper denture (replacing 14 teeth) or a partial upper denture (replacing fewer than 14 teeth). We have presented lower dentures as one group only since virtually all of these were partial dentures.

Among the dentures available for examination the vast majority had a base of plastic (Table 7.5) although there were some differences according to the denture pattern. Only 1% of full upper dentures were of metal, but 5% of partial upper dentures and 15% of lower dentures had a metal base. Vulcanite occurred very infrequently, accounting for only 2% of full upper plates and 1% of lower plates. The metal dentures were obviously a somewhat special form of replacement:- two thirds of the people with a metal denture were in the top social class group (I, II and III non-manual), and 43% of the metal dentures had been supplied privately.

The condition of the denture was assessed by the dentist in terms of any debris found on it. Soft debris was considerably more common on the full upper denture than on other dentures, the proportions with soft debris on the fitting surface being 45% of full upper dentures, 29% of partial upper dentures and 25% of lower dentures. When one looks at the results for hard debris, it is seen that the proportion found to have hard debris on the fitting surface is less than the proportion with soft debris for both types of upper denture. For the lower, however, hard debris was somewhat more common than soft debris.

Table 7.5

THE EXAMINATION ASSESSMENT OF DENTURES
AMONG THE PARTIALLY-DENTURED

Denture material	Upper denture		Lower denture
	Full	Partial	
	%	%	%
Metal	1	5	15
Vulcanite	2	-	1
Plastic	97	95	84
	100	100	100
Condition of denture	%	%	%
Soft debris	45	29	25
None	55	71	75
	100	100	100
Hard debris	%	%	%
None	35	25	36
	65	75	64
	100	100	100
State of Repair	%	%	%
Denture broken	17	18	10
Not	83	82	90
	100	100	100
Denture repaired	%	%	%
Not	14	19	7
	86	81	93
	100	100	100
Denture rebased	%	%	%
Not	3	-	-
	97	100	100
	100	100	100
Soft lining	%	%	%
None	1	-	-
	99	100	100
	100	100	100
BASES - Dentures available for examination	166	198	88

Base numbers re-weighted.

Among the partially-dentured a considerable number of dentures were found to be broken at the time of the dental examination (the proportions broken were 17% of full upper dentures, 18% of partial upper dentures and 10% of lower dentures). The upper denture more frequently had evidence of repair than the lower. This level of repair and need for repair only reflects the state of those dentures made available for examination, and it is probable that quite a number of the lower dentures that were not available for examination were damaged. Rebased dentures and soft linings occurred very infrequently.

Table 7.6 shows the mouth conditions found by the examiner among the partially-dentured, and we see that denture ulceration and denture hyperplasia were both infrequent (the ulceration which was found was usually associated with a full upper denture). Mucosal inflammation, on the other hand, was frequently found. It was particularly prevalent in those upper jaws where a partial denture had been provided, mucosal inflammation being found in almost three quarters (71%) of these cases.

Table 7.6
THE CONDITION OF THE MOUTH AMONG THE PARTIALLY-DENTURED

Condition of mouth	Dentate adults with a denture for the :		
	Upper Jaw		Lower Jaw
	Full	Partial	
Denture ulceration	%	%	%
None	7 93 <hr/> 100	1 99 <hr/> 100	2 98 <hr/> 100
Denture hyperplasia	%	%	%
None	4 96 <hr/> 100	5 95 <hr/> 100	3 97 <hr/> 100
Mucosal inflammation	%	%	%
None	47 53 <hr/> 100	71 29 <hr/> 100	45 55 <hr/> 100
BASES	173	225	122

Base numbers re-weighted.

The dental examiner also assessed how well the dentures fitted, and Table 7.7 shows that the partial upper denture was better at remaining in position than was either the full upper denture or the lower denture, the proportion of dentures unseated on opening the mouth being 8%, 23% and 26% respectively and the proportion with movement of the base being 7%, 19% and 15% respectively. For dentate adults with dentures the partial upper denture appeared to be the most successful in terms of fit. We looked in some detail at the fairly small number of dentures which had a metal base. The fit of these dentures in terms of unseating and in terms of the

base moving, was no different from dentures with a plastic base, and they appeared to cause mucosal inflammation to the same extent as plastic dentures.

Table 7.7

THE FIT OF DENTURES AMONG THE PARTIALLY-DENTURED

Fit of denture	Upper denture		Lower denture
	Full	Partial	
Unseated on opening Not	$\frac{\%}{23}$	$\frac{\%}{8}$	$\frac{\%}{26}$
	77	92	74
	100	100	100
Base moves Does not	$\frac{\%}{19}$	$\frac{\%}{7}$	$\frac{\%}{15}$
	81	93	85
	100	100	100
BASES - dentures available for examination	166	198	88

Base numbers re-weighted.

7.3 Do Dentate Adults With Dentures Wear Their Dentures?

We start from the premise that if a person has been provided with dentures then it is in that person's dental interest to wear them, and by not wearing them the person receives less than full dental benefit. In our description of the wearing of dentures we group together all people who said they had not worn either or both of their dentures in the four weeks prior to the interview.

Table 7.8

THE WEARING OF DENTURES BY THE PARTIALLY-DENTURED

Wearing of dentures	Dentate adults who have a denture
	$\frac{\%}{20}$
One or both dentures not worn	6
Dentures worn, but not all day	74
Dentures worn all day	100
BASE	410

Base number re-weighted.

Almost three quarters (74%) of those people who had been provided with a denture or dentures to complement their natural teeth were in the habit of wearing all they had been provided with, all of the day time (Table 7.8). Although, in terms of usage, the majority were receiving some benefit from their dentures, one fifth of the partially-dentured had a combination of natural teeth and dentures that was proving unacceptable, since they did not wear one (or both) of their dentures at all.

The most common reason for dentures not being worn at all was because the denture hurt the person or made the mouth sore, this being equally so for upper and lower dentures. More upper dentures were said to make the wearer feel sick but an equal proportion of upper and lower were said not to be a good fit. Twice as many upper dentures were said to be lost or broken.

A small proportion of the partially-dentured (6%) wore their dentures some of the time but not all day, and it would thus appear that if a denture proves to be unacceptable then it tends not to be worn at all rather than worn for only part of the time. We asked those who wore their dentures some but not all of the time, to describe when the dentures were and were not worn, and the most common situation for the upper and for the lower was that the denture was worn for appearance only.

We were interested to see whether among dentate adults denture wearing varied for different groups of people. There was little variation with age, although more of the youngest people wore their dentures all day than other people. A similar proportion of men and women did not wear their dentures at all (23% of men and 18% of women), but fewer people in the top social class group did not wear them (the proportions not wearing their dentures at all were 14%, 25% and 22% over the three social class groups). There was an interesting variation with the length of time since the person last visited the dentist, the proportion who did not wear their dentures at all increasing steadily from 12% among those whose visit was in the last 6 months to 30% among those whose last visit was more than 3 years ago.

The dentures provided for dentate adults varied widely, and we examined next whether the wearing pattern was similar or different for the different types of dentures. The results, given in Table 7.9, show that the extent of wearing is very much related to the replacement pattern, and we look in detail at each of the denture combinations.

We consider firstly those people who have lost all of their upper natural teeth and have been fitted with a full upper denture, but still retain some of their natural lower teeth and have not had a lower denture. The great majority (93%) were in the habit of wearing their full upper denture all day. Only a very small proportion (4%) did not wear it at all. But where a partial lower denture had been provided as well as the full upper denture, only just over one half (53%) of the people wore both the upper and lower dentures all day. The reduction for this group in the proportion wearing their dentures all day was practically entirely the result of a high proportion of partial lower dentures not being worn at all (41% of the partial lower dentures had not been worn in the four weeks prior to the interview). It would appear, therefore, that this combination of dentures was unacceptable to a great many wearers.

Table 7.9

THE WEARING OF DENTURES BY THE PARTIALLY-DENTURED ACCORDING TO DENTURE PATTERN

Wearing of dentures	Dentate adults who have a denture			
	Denture pattern			
	Full upper no lower	Full upper partial lower	Partial upper no lower	Partial upper partial lower
	%	%	%	%
Upper not worn	4	-	14	-
Lower not worn		41		27
Both not worn		-		29
Dentures worn, but not all day	3	6	5	10
Dentures worn all day	93	53	81	34
	100	100	100	100
BASES	107	66	181	41

Base numbers re-weighted.

Next we consider those people who retained some natural teeth in the upper jaw, but had had some upper teeth replaced by a denture and had no lower denture. Among this group the majority (81%) wore their partial upper denture all day. Although four out of five were therefore obtaining the maximum benefit, this was not such a high achievement as among people with a full upper denture only. It was, however, a much higher level of wearing than we find among the next group, that is those who had a partial denture in the lower jaw as well as in the upper jaw. Among people who also had a partial lower denture only just over one third (34%) wore both the upper and the lower all the time. This combination of dentures thus appeared to be particularly unacceptable to the wearer. Again the biggest contribution to the reduction in wearing the dentures all day came from the partial lower denture (56% of partial lower dentures which opposed partial upper dentures, had not been worn in the last four weeks). Unlike the "full upper and partial lower" group, the unacceptability of the lower partial appeared to affect the acceptability of the upper partial since 29% wore neither denture.

A small number of people had a pattern of dentures other than those given in Table 7.9, for example a denture in the lower jaw only or a partial upper denture opposing a full lower denture. These patterns also appeared to be somewhat unsatisfactory replacement patterns in terms of whether they were worn, but the numbers concerned are too small for detailed analysis.

It is obvious, therefore, that some combinations of dentures are much more acceptable to the wearer than others. An upper denture appeared to be more acceptable than a lower, and a full upper denture was somewhat more acceptable than a partial upper denture.

We were interested to see whether the metal dentures which had been provided were more acceptable to the wearer than plastic dentures. Considerably more of the metal dentures were worn all day but it is difficult to ascertain how much of this was due to the denture itself since the majority of the wearers were in

the top social class group who (as we have seen) were more likely to wear their dentures than other people.

So far we have only been concerned with the pattern of dentures in terms of whether they were full or partial dentures and which jaw they were for. We look next at whether they replaced some front teeth or some back teeth or both. As can be seen from Tables 7.10 and 7.11 appearance was obviously a contributory factor to the wearing in that those dentures which involved front tooth replacement were more often worn all day than where the denture replaced back teeth only. Table 7.10 deals with those people whose only denture was a partial upper. If the denture replaced front teeth only, then 97% were worn all day; where some back teeth were also replaced 79% were worn all day; where the denture involved back teeth only, then 61% were worn all day.

Table 7.10
THE WEARING OF PARTIAL DENTURES ACCORDING TO WHICH TEETH REPLACED

Wearing of partial upper denture	Dentate adults who have a denture		
	Partial upper denture, no lower denture		
	Denture replaces:		
	Front [#] teeth only	Front and back teeth	Back [#] teeth only
	%	%	%
Denture not worn	3	13	34
Denture worn, but not all day	*	8	5
Denture worn all day	97	79	61
	100	100	100
BASES	38	121	22

Base numbers re-weighted.
[#]Front = 3-3; Back = 4-7.
 *Less than 0.5%.

Table 7.11 deals with those people whose partial denture was in the lower jaw (but who also had a full upper denture). None of the partial lower dentures involved front teeth only, but those which involved both front and back teeth were somewhat more frequently said to be worn all day (69%) than where the replacement involved back teeth only (46% worn all day).

We looked at the wearing patterns according to tooth replacement for the small number of people who had been fitted with a partial denture in each jaw. The numbers here were too small for any detailed analysis, but we mention one group of people, those for whom both the upper and lower dentures replaced back teeth only; among the 12 people concerned, only one of them wore both dentures all day.

Finally we compared whether the person's rejection of the dentures by not wearing them, was related to the fit of the dentures as assessed in the examination. The wearing of upper dentures was not related to the examination findings in terms of the denture becoming unseated or the base moving. In the lower jaw, however, slightly more of those dentures which were unseated on opening were not worn at all, and slightly more of those dentures which had a base that moved were not worn at all.

Table 7.11

THE WEARING OF PARTIAL DENTURES ACCORDING TO WHICH TEETH REPLACED

Wearing of partial lower denture	Dentate adults who have a denture	
	Full upper denture, partial lower denture	
	Denture replaces:	
	Front and back teeth	Back teeth only
	%	%
Denture not worn	25	51
Denture worn, but not all day	6	3
Denture worn all day	69	46
	100	100
BASES	23	43

Base numbers re-weighted.

7.4 Some of the Difficulties of Having Dentures

We have already commented on the importance of appearance on whether or not dentures are worn, the fact that some types of dentures are less likely to be worn than others, and that sometimes the fit, as assessed by the dentist, had no bearing on whether the denture was worn or not. These findings suggest that the difficulties encountered by people who have dentures, and the personal adjustments which need to be made, will be met by different reactions. Some people will stop wearing their dentures and others will continue wearing them despite the difficulties encountered. During the interview we asked those who had dentures whether certain everyday experiences caused them any difficulties because of their dentures. We included people who were not currently wearing their dentures and asked them whether they had, or would have, experienced any difficulties, since some people may have given up wearing their dentures because of such difficulties.

We present the results (in Table 7.12) separately for those who wear their dentures and those who do not, and we also examine the results separately for each jaw. The everyday circumstances we asked about were yawning, talking, chewing meat and biting into a raw apple. We also asked the person whether he felt his dentures were too loose or too tight, and whether they had made his mouth sore at all in the previous four weeks.

Among those who wear their dentures all day, yawning and talking caused problems in a fairly similar proportion of cases, and upper and lower dentures were equally troublesome (yawning caused problems in 10% and 5% of cases for upper and lower dentures, talking caused problems in 6% and 7% of cases). A higher proportion of people had had difficulties with yawning and talking among those who did not wear their dentures (yawning caused problems in 16% and 25% of upper and lower dentures respectively, and talking caused difficulties with 30% of both upper and lower dentures).

Table 7.12

DIFFICULTIES WITH DENTURES AMONG THE PARTIALLY-DENTURED

Whether person has had difficulties with:		Dentate adults who have a denture					
		Upper denture			Lower denture		
		Not worn	Worn part of day	Worn all day	Not worn	Worn part of day	Worn all day
Yawning	Difficulties None	%	%	%	%	%	%
		16	9	10	25	*	5
		84	91	90	75	*	95
		100	100	100	100		100
Talking	Difficulties None	%	%	%	%	%	%
		30	20	6	30	*	7
		70	80	94	70	*	93
		100	100	100	100		100
Chewing meat	Difficulties None	%	%	%	%	%	%
		51	34	13	63	*	18
		49	66	87	37	*	82
		100	100	100	100		100
Biting into a raw apple	Difficulties None	%	%	%	%	%	%
		45	35	29	51	*	18
		55	65	71	49	*	82
		100	100	100	100		100
Fit of dentures	Too loose About right Too tight	%	%	%	%	%	%
		20	23	27	27	*	21
		47	77	73	38	*	79
		33	-	-	35	*	-
		100	100	100	100		100
Comfort of dentures#	Hurt Not	%	%		%	%	
		18	7		*	7	
		82	93		*	93	
		100	100				100
		BASES		43	23	332	53	11	58

Base numbers re-weighted.

#Asked only of those who had worn the denture in the 4 weeks prior to the interview.

*Base number too small to give percentages.

Chewing meat appeared to be more difficult, and the upper and lower dentures were equally troublesome (of those dentures worn all day, the proportions causing trouble were 13% and 18% for upper and lower dentures respectively). Those people who no longer wore their dentures had experienced much more trouble where chewing meat was concerned, the proportions having difficulties being 51% and 63% for upper and lower dentures respectively.

For people who wear their dentures, biting into a raw apple was the most difficult task where the upper denture was concerned, but caused no more trouble than chewing meat for the lower denture (the proportions having trouble biting into a raw apple were 29% and 18% for upper and lower dentures respectively). Again, the people who did not wear their dentures had had more trouble in this respect, 45% of upper dentures and 51% of lower dentures causing trouble.

Among people who wear their dentures all day, none thought that their dentures were too tight, although 27% of upper dentures and 21% of lower dentures were said to be too loose. Among those who did not wear their dentures, however, about a third of the dentures (33% of upper and 35% of lower) were said to be too tight. This is not surprising since if the dentures are not worn then the remaining natural teeth are likely to move so that the gaps close, resulting in the denture either not fitting at all or being too tight.

Only a small proportion of those who wear their dentures said that the denture had made the mouth sore (7% of upper and of lower) but almost one fifth (18%) of the people who wear their upper denture for only part of the day had had trouble in this respect.

We looked at the examination information in relation to what the person said the difficulties were (Table 7.13). Those dentures which became unseated on opening and those which had a base that moved did, in general, cause considerably more problems to the wearer in the everyday situations than those dentures which had a satisfactory fit according to the dental examination. In addition considerably more of the unseated dentures and considerably more of the dentures which had a base that moved, were said by the informant to be too loose. The proportion of dentures which were said to have made the person's mouth sore was no higher in those cases where there was some mucosal inflammation.

We examined the survey results to see what proportion of dentate adults with dentures wore their dentures all day and gave no indication of having any problems with them at all, in terms of the difficulties discussed above. This amounted to 41% of the group. We asked the 59%, for whom some indication of difficulties had been given, whether they were planning to visit the dentist to see if anything could be done to improve the situation. Two out of five said they were planning to see about them, three out of five said they were not. Thus there was not a very high priority, or high expectation, expressed by those who had difficulties, for the success of dentures in combination with natural teeth.

Table 7.13
DIFFICULTIES WITH DENTURES BY FIT OF DENTURES

Whether person has had difficulties with:		Dentate adults who have a denture							
		UNSEATING				BASE MOVING			
		Upper		Lower		Upper		Lower	
		Un-seated	Not	Un-seated	Not	Base moves	Not	Base moves	Not
Yawning	Difficulties None	%	%	%	%	%	%	%	%
		24	7	20	6	18	9	*	6
		76	93	80	94	82	91	*	94
		100	100	100	100	100	100	100	100
Talking	Difficulties None	%	%	%	%	%	%	%	%
		19	5	25	16	11	7	*	19
		81	95	75	84	89	93	*	81
		100	100	100	100	100	100	100	100
Chewing meat	Difficulties None	%	%	%	%	%	%	%	%
		25	13	40	29	24	14	*	30
		75	87	60	71	76	86	*	70
		100	100	100	100	100	100	100	100
Biting into a raw apple	Difficulties None	%	%	%	%	%	%	%	%
		39	28	50	20	49	27	*	21
		61	72	50	80	51	73	*	79
		100	100	100	100	100	100	100	100
Fit of dentures	Too loose About right Too tight	%	%	%	%	%	%	%	%
		46	22	38	17	40	24	*	20
		52	78	52	79	58	76	*	76
		2	-	10	4	2	-	*	4
		100	100	100	100	100	100	100	100
BASES		56	308	23	65	47	317	13	75

Base numbers re-weighted.

*Base number too small to give percentages.

8 The Provision of Full Dentures

In Scotland the provision of full dentures for those who have had a full clearance is nearly universal, 97% of those with no natural teeth having been fitted with full dentures. The 3% (44 people) who said that they had never been fitted with full dentures was made up of 23 who said that they could manage satisfactorily without dentures and had never bothered to get a set, 5 who were waiting for their first full set of dentures, 2 who were unable to wear a set, 3 who expressed apprehension of going to the dentist to get a set, 5 who managed with a full upper denture only, and 6 who mentioned expense as a contributory factor.

Thus, once full clearance has been carried out there is virtually no unmet need for the provision of full dentures, although of course, there may be some unmet need in the community for full clearance. A discussion of the unmet need for full clearance will be found in Chapter 9.

When discussing the situation of dentate adults who had been provided with dentures one of the main points of interest was the range of teeth that had been replaced, since this varied considerably for different people. The range of replacement is not a major problem when discussing full dentures, since the intention is that all natural teeth will have been replaced by a full upper denture and a full lower denture. In practice some people with full dentures have one or two teeth or roots present under their dentures, which can result from a wisdom tooth erupting after full clearance, or a root defying extraction. In all, 5% of full denture wearers had evidence of some of their natural dentition still remaining. Although of interest in so far as this indicates possible need of further extractions among the so-called edentulous it does not alter the fact that the intention was for the natural dentition to be totally replaced by dentures.

8.1 The Examination Assessment of Full Dentures

Almost all the people who had been fitted with full dentures were able to produce the dentures for the examination; slightly fewer lower dentures were available than upper dentures (overall 98% of full upper dentures and 93% of full lower dentures were available for examination). We give in Table 8.1 the examination assessment of the dentures, separately for the upper and lower jaws.

Among the dentures available for examination the vast majority (96% of upper and of lower) had a base of plastic, although a small proportion were of vulcanite (3% of upper dentures and 4% of lower dentures). Since we are concerned here with full dentures, metal bases occurred very infrequently, only 1% of upper dentures being of metal.

Table 8.1

THE EXAMINATION ASSESSMENT OF FULL DENTURES

	Upper denture	Lower denture
Denture material	%	%
Metal	1	-
Vulcanite	3	4
Plastic	96	96
	100	100
Condition of denture	%	%
Soft debris	42	33
None	58	67
	100	100
Hard debris	%	%
None	29	40
	71	60
	100	100
State of Repair	%	%
Denture broken	10	4
Not	90	96
	100	100
Denture repaired	%	%
Not	9	6
	91	94
	100	100
Denture rebased	%	%
Not	1	2
	99	98
	100	100
Soft lining	%	%
None	1	1
	99	99
	100	100
BASES-dentures available for examination	865	821

Base numbers re-weighted.

Soft debris was more common on the upper denture than on the lower; 42% of upper plates and 33% of lower plates were found to have soft debris on the fitting surface. Hard debris, on the other hand, occurred more frequently on the lower denture (the proportions of dentures having hard debris on the fitting surface were 29% and 40% for upper and lower respectively).

A fairly high proportion of upper dentures (10%) were found to be broken (ie the base was cracked or part of the denture was broken off), this proportion being 4% for the lower denture. In addition there was evidence of repair on 9% of upper dentures and 6% of lower dentures. As we see from Table 8.1 very few dentures were rebased or had a soft lining.

As well as examining the denture itself, the dentist also examined the mouth to see if there were any problems associated with the wearing of the dentures, and we give the results in Table 8.2. This part of the examination was carried out for all people who had been fitted with a full set of dentures, irrespective of whether the dentures themselves were available for examination.

Table 8.2
THE CONDITION OF THE MOUTH, AMONG THE FULLY-DENTURED

Condition of mouth	Adults who have been fitted with a full set of dentures	
	Upper Jaw	Lower Jaw
Denture ulceration	%	%
None	2 98 100	6 94 100
Denture hyperplasia	%	%
None	4 96 100	7 93 100
Mucosal inflammation	%	%
None	31 69 100	29 71 100
BASE	880	

Base number re-weighted.

Table 8.2 shows that denture ulceration and denture hyperplasia were both infrequent, but occurred more often in the lower jaw. Mucosal inflammation caused by the denture was, on the other hand, quite a common occurrence, involving 31% of upper and 29% of lower jaws. We looked to see if it was the same people who had inflammation in the upper jaw who also had it in the lower, and in fact this was not the case; of fully-dentured persons 46% had some inflammation, and this was made up of 17% where only the upper jaw was involved, 15% where only the lower was involved, and 14% where the inflammation was present in both jaws.

An important factor in the efficiency with which dentures perform their function is, of course, how well they fit. The dentist made three observations on the fit of the dentures and the results are given in Table 8.3.

In terms of fitting well it was the lower denture which was the less satisfactory. The dentist recorded that just over half (51%) of full lower dentures became unseated when the wearer opened his mouth, compared to 17% of full upper dentures; and just over one third (35%) of full lower dentures were found to move more than a quarter of an inch in a horizontal plane when seated on the mucosa, compared to 13% of full upper dentures. Overall, the occlusion between full upper and lower dentures was unsatisfactory in over one third (36%) of cases.

Table 8.3
THE FIT OF DENTURES, AMONG THE FULLY-DENTURED

Fit of denture	Upper denture	Lower denture
	%	%
Unseated on opening	17	51
Not	<u>85</u>	<u>49</u>
	100	100
	%	%
Base moves	13	35
Does not	<u>87</u>	<u>65</u>
	100	100
	Upper and lower dentures	
	% 64 <u>36</u> 100	
Occlusion satisfactory		
Not		
BASES - dentures available for examination	865	821

Base numbers re-weighted.

If we compare the examination results for full dentures with the results for the partially-dentured (Table 7.7) the survey shows that on the criteria laid down for the examination partial upper dentures had the best fit and full lower dentures the worst.

8.2 Do Adults With Full Dentures Wear Their Dentures?

Although the vast majority of people who had lost all their natural teeth had been provided with full dentures, this does not necessarily mean that the dentures were worn. Our criteria for wearing was based on whether the dentures had been worn, at all, in the four weeks prior to the interview. For dentures that had been worn at least some of the time we further asked whether or not the dentures were worn all the daytime, that is from when the informant got up to when he went to bed.

Table 8.4 shows that the great majority (82%) of those who had been provided with a full set of dentures were in the habit of wearing both the upper and lower denture all day. There was on the other hand a group of considerable size (12%) who did not wear one or other denture at all; this group was made up of 4% who did not wear either denture and 8% who wore only the upper denture. Where one or both dentures were not worn we asked the informant why this was. The most common reason for full lower dentures not being worn was that they did not fit well, and some of them were said to hurt. The most common reason given for not wearing the upper denture was that it made the informant feel sick. An equal proportion of upper and lower dentures were said to be lost or so severely damaged that they could not be worn.

Table 8.4

THE WEARING OF DENTURES BY THE FULLY-DENTURED

Wearing of dentures	Adults who have been fitted with a full set of dentures.
	%
One or both dentures not worn	12
Both dentures worn, but not all day	6
Both dentures worn all day	82
	<u>100</u>
BASE	880

Base number re-weighted.

The remaining group, 6%, were in the habit of wearing their dentures for part of the day only, and we were interested to know when the dentures were worn and when they were not. There were no differences between upper and lower dentures as to the times at which they were worn. By far the most common situation was a denture only being worn for appearance's sake, for instance when the informant was at work or when he had company (three quarters of dentures worn for part of the day were worn only for appearance). A third of those who did not wear their dentures all day took them out for eating, and one in ten wore them only for eating. A fifth of dentures worn for part of the day were worn intermittently according to when the person's mouth was sore.

We looked at different groups of people to see who were the most likely not to wear their dentures and the main results are given in Tables 8.5 and 8.6. The proportion who wore both dentures all day declined steadily with age (Table 8.5), from 90% among those aged 16-34 to 75% among those aged 75 and over. The people in this oldest age group were in a particularly unfavourable position with regard to denture wearing, as over one fifth (22%) of them did not wear one or other denture at all.

Table 8.5

THE WEARING OF FULL DENTURES, FOR ADULTS OF DIFFERENT AGES

Wearing of dentures	Adults who have been fitted with a full set of dentures						
	Present age						All ages
	16-34	35-44	45-54	55-64	65-74	75 and over	
	%	%	%	%	%	%	%
One or both dentures not worn	7	8	9	14	11	22	12
Both dentures worn, but not all day	3	7	7	6	8	3	6
Both dentures worn all day	<u>90</u>	<u>85</u>	<u>84</u>	<u>80</u>	<u>81</u>	<u>75</u>	<u>82</u>
	100	100	100	100	100	100	100
BASES	58	124	193	236	201	68	880

Base numbers re-weighted.

There was some variation with social class (Table 8.6) in that proportionately more people in the top social class group were in the habit of wearing both dentures all day (this proportion decreased from 91% to 79% over the three groups).

Table 8.6

THE WEARING OF FULL DENTURES, FOR ADULTS OF DIFFERENT SOCIAL CLASSES

Wearing of dentures	Adults who have been fitted with a full set of dentures			
	Household Social Class			All* social classes
	I, II and III non-manual	III manual	IV non-manual, IV manual and V	
	%	%	%	
One or both dentures not worn	6	12	12	12
Both dentures worn, but not all day	3	7	9	6
Both dentures worn all day	<u>91</u>	<u>81</u>	<u>79</u>	<u>82</u>
	100	100	100	100
BASES	183	314	286	880

Use numbers re-weighted.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

The wearing of full dentures was no different for men and women, did not vary according to the length of time since the person lost the last of his natural teeth, and did not vary according to how long ago the person visited the dentist. We also looked to see if the wearing of full dentures was associated with the age of the dentures, but it was not.

It was not possible to compare whether the person wore his dentures with the examination data about the health of the mouth because if, for instance, the dentures had not been worn at all for at least a month (and most probably much longer), then any injury caused to the mouth by the dentures had had time to heal. Dentures that were not being worn because they had been severely damaged were not on the whole available for examination. The broken dentures that were seen by the dentist were probably less seriously damaged for in many cases they could be worn. In fact among the dentures seen by the dentist those that were broken were as likely to be worn as those which were not broken.

The dentist's assessment of how well the dentures fitted did show an association with denture wearing, but the differences were not particularly large. Table 8.7 shows that more of the dentures which were unseated were not worn at all, and this was true equally for the full upper and the full lower denture (in the upper jaw 9% of the dentures which became unseated were not worn compared to 1% of the dentures which did not become unseated; the figures for the lower jaw were 9% and 2% respectively). Although fewer of the dentures which became unseated were worn by the person all day, even so, 80% of full upper dentures which were unseated and 83% of full lower dentures which were unseated, were worn all day. It would therefore appear that this particular denture problem has a high degree of tolerance among full denture wearers.

Table 8.7

THE WEARING OF FULL DENTURES BY WHETHER THE DENTURE WAS UNSEATED

Wearing of denture	Upper denture		Lower denture	
	Unseated	Not unseated	Unseated	Not unseated
	%	%	%	%
Denture not worn	9	1	9	2
Denture worn, but not all day	11	4	8	5
Denture worn all day	80	95	83	93
	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
BASES - dentures available for examination	144	721	419	402

Base numbers re-weighted.

In terms of the denture base moving (Table 8.8) we have a similar result, in that more of the dentures for which the base moved were not worn at all by the person, but again we see that a high proportion of dentures which had a base that moved were worn all day (84% for the full upper denture and 85% for the full lower denture).

Table 8.8

THE WEARING OF FULL DENTURES BY WHETHER THE BASE MOVED

Wearing of denture	Upper denture		Lower denture	
	Base moves	Does not	Base moves	Does not
	%	%	%	%
Denture not worn	7	1	8	4
Denture worn, but not all day	9	5	7	6
Denture worn all day	84	94	85	90
	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
BASES - dentures available for examination	110	755	291	530

Base numbers re-weighted.

Although, as we have seen in Section 8.1, the occlusion of the full upper and full lower denture was found to be unsatisfactory in a fairly high proportion (36%) of cases, the proportion of dentures worn all day was virtually the same in those cases where the occlusion was satisfactory as in those cases where there was an unsatisfactory occlusion; the proportions worn all day, given in Table 8.9, were 89% where the occlusion was satisfactory and 86% where it was unsatisfactory.

It would therefore appear that although many dentures had an unsatisfactory fit in terms of the dental examination criteria, the association between how well they fitted and whether they were worn was not particularly marked. We shall see in Section 8.3 that in many cases a denture problem as indicated by the dental examination was not apparently recognized as a problem by the wearer.

Table 8,9
THE WEARING OF FULL DENTURES BY FULL DENTURE OCCLUSION

Wearing of dentures	Upper and lower dentures	
	Occlusion satisfactory	Not satisfactory
One or both dentures not worn	4	8
Both dentures worn, but not all day	7	6
Both dentures worn all day	89	86
	<u>100</u>	<u>100</u>
BASES - dentures available for examination	525	287

Base numbers re-weighted.

8.3 Some of the Difficulties of Having Full Dentures.

Dentures are rarely a perfect substitute for natural teeth, and can cause the wearer various problems. We have already seen the proportion of people who had been fitted with dentures who were not in fact wearing them at all, and we have also shown how many of the dentures seen by the examiners were found to be unsatisfactory.

In the interview we asked people with dentures about some everyday situations which denture wearers have to cope with to see how many of them had difficulties, the everyday situations being yawning, talking, chewing meat and biting into a raw apple. We also asked whether full denture wearers thought their dentures were too loose, about right, or too tight, and whether or not the dentures had hurt or made their mouth sore in the four weeks prior to the interview.

Having already found some association between the wearing of dentures and the problems as measured in the dental examination, we might expect to find a similar association between wearing and the problems experienced by the informant. We therefore give the results separately according to whether the dentures were or were not currently worn.

We see from Table 8,10 that wearing dentures is very much related to the difficulties that are or would be encountered; for each of the difficulties it was those dentures which were not currently worn that were or had been by far the most troublesome.

Yawning and talking caused problems in similar proportions of cases, but in each of these situations it was the lower denture which was the most troublesome; of those dentures worn all day, yawning caused problems in 9% and 13% of cases for upper and lower dentures respectively, the proportions for talking being 6% and 9%. For those dentures not worn the proportions causing trouble when yawning were 30% and 49% for upper and lower, the comparable figures for talking being 34% and 53%.

Chewing meat caused rather more problems and again it was the lower denture which was the less satisfactory; of those dentures worn all day, chewing meat caused problems in 10% and 15% of cases for upper and lower dentures respectively. People who did not

currently wear their dentures had had much more trouble in this respect, the proportions causing difficulties being 59% and 78% for upper and lower dentures respectively.

Table 8.10
DIFFICULTIES WITH DENTURES, AMONG THE FULLY-DENTURED

Whether person has had difficulties with:		Adults who have been fitted with a full set of dentures					
		Upper denture			Lower denture		
		Not worn	Worn part of day	Worn all day	Not worn	Worn part of day	Worn all day
		%	%	%	%	%	%
Yawning	Difficulties None	30	14	9	49	29	13
		70	86	91	51	71	87
		100	100	100	100	100	100
Talking	Difficulties None	34	12	6	53	24	9
		66	88	94	47	76	91
		100	100	100	100	100	100
Chewing meat	Difficulties None	59	48	10	78	57	15
		41	52	90	22	43	85
		100	100	100	100	100	100
Biting into a raw apple	Difficulties None	74	68	34	80	67	36
		26	32	66	20	33	64
		100	100	100	100	100	100
Fit of dentures	Too loose About right Too tight	31	26	17	62	50	30
		64	72	83	26	42	69
		5	2	*	12	8	1
Comfort of dentures [#]	Hurt Not	16	6		41	19	
		84	94		59	81	
		100	100		100	100	
BASES		37	45	798	103	52	725

Base numbers re-weighted.

*Less than 0.5%.

[#] Asked only of those who had worn the denture in 4 weeks prior to interview.

Biting into a raw apple was by far the most difficult task for the fully-dentured, problems being encountered for 34% of upper dentures worn all day and 36% of lower dentures worn all day. Again more problems had been experienced by those who did not now wear their dentures, the proportions causing difficulty being 74% and 80% for upper and lower respectively.

Very few dentures were thought to be too tight but considerable numbers were said to be too loose, and again it was the full lower denture which was the less satisfactory. Of those dentures worn all day the proportions which were too loose were 17% and 30% for upper and lower respectively, the proportions for those dentures not worn being 31% and 62%.

We have compared those who wear their dentures all day and those who do not wear them at all. Among those who wear their dentures for part of the day only, more problems were experienced than among those who wear their dentures all day, but fewer problems were experienced than among those who did not wear their dentures at all. It would appear that in many cases where the denture causes problems to the wearer, the solution on the part of the wearer was to do without that denture. There were however still a considerable number of cases of the dentures being worn all day despite the problems they caused. Very few of the upper dentures that were worn were said to have made the person's mouth sore (6%), but almost one fifth (19%) of lower dentures were said to have been troublesome in this respect. Where the dentures were worn for part of the day only there were considerably more problems, the proportions having made the mouth sore being 16% and 41% for upper and lower jaws respectively.

We looked at whether the problems which the wearer encountered were related in any way to the dental examination assessment of how well the dentures fitted, and the results were very interesting (Table 8.11). Those dentures found by the dental examiner to become unseated or to have a base which moved, caused more difficulties to the wearer than those which were satisfactory in these respects, this being consistently so for each of the everyday situations of yawning, talking, chewing meat and biting into a raw apple. For example 19% of unseated upper dentures caused difficulties when the wearer was talking, compared to only 5% of upper dentures which were not unseated. Similarly more dentures which were unsatisfactory in that they became unseated or had a base which moved, were said by the informant to be too loose (for example 35% of full upper plates which had a base which moved were said to be too loose compared to only 16% of full upper plates where the base did not move).

Table 8.11
DIFFICULTIES WITH DENTURES, BY FIT OF DENTURES

Whether person has had difficulties with:		Adults who have been fitted with a full set of dentures							
		UNSEATING				BASE MOVING			
		Upper		Lower		Upper		Lower	
		Un-seated	Not Un-seated	Un-seated	Not Un-seated	Base moves	Does not	Base moves	Does not
Yawning	Difficulties None	%	%	%	%	%	%	%	%
		24	7	21	11	18	8	20	14
		76	93	79	89	82	92	80	86
		100	100	100	100	100	100	100	100
Talking	Difficulties None	%	%	%	%	%	%	%	%
		19	5	17	8	13	6	17	10
		81	95	83	92	87	94	83	90
		100	100	100	100	100	100	100	100
Chewing meat	Difficulties None	%	%	%	%	%	%	%	%
		27	10	27	16	19	12	27	18
		73	90	73	84	81	88	73	82
		100	100	100	100	100	100	100	100
Biting into a raw apple	Difficulties None	%	%	%	%	%	%	%	%
		51	34	49	32	46	35	27	18
		49	66	51	68	54	65	73	82
		100	100	100	100	100	100	100	100
Fit of dentures	Too loose About right Too tight	%	%	%	%	%	%	%	%
		38	14	39	27	35	16	37	31
		60	86	59	72	65	84	60	68
		2	-	2	1	-	-	3	1
		100	100	100	100	100	100	100	100
BASES		146	719	418	403	111	754	291	530

Base numbers re-weighted.

We look at full denture occlusion (Table 8.12) in terms of one situation only, that is the chewing of meat, for this task is likely to be particularly difficult with a full set of dentures which do not occlude properly. Where the occlusion of upper and lower dentures was unsatisfactory, 15% of full upper dentures and 27% of full lower dentures caused problems when the wearer was chewing meat, compared to 12% and 18% where the occlusion was satisfactory. An unsatisfactory occlusion seemed to have an adverse effect on the lower denture when the person was chewing meat, but did not on the upper denture.

Table 8,12

DIFFICULTIES OF CHEWING MEAT, BY FULL DENTURE OCCLUSION

Whether person has had difficulties chewing meat	Adults who have been fitted with a full set of dentures			
	FULL DENTURE OCCLUSION			
	Occlusion satisfactory		Not satisfactory	
	Upper	Lower	Upper	Lower
Difficulties None	%	%	%	%
	12	18	15	27
	88	82	85	73
	100	100	100	100
BASES	525		289	

Base numbers re-weighted.

We also looked in detail to see whether there was any association between the dental examiner finding mucosal inflammation and the person saying the denture hurt or made the mouth sore (Table 8,13). There was a slight difference in the lower jaw but none in the upper.

Table 8,13

WHETHER DENTURE HAS HURT, BY MUCOSAL INFLAMMATION

Whether denture has hurt or made mouth sore	Adults who have been fitted with a full set of dentures			
	MUCOSAL INFLAMMATION			
	Upper		Lower	
	Inflammation	None	Inflammation	None
Hurt Not	%	%	%	%
	5	7	25	18
	95	93	75	82
	100	100	100	100
BASES	267	576	247	530

Base numbers re-weighted.

Although there was some association between the dentist finding the denture unsatisfactory in some way, and the person having some difficulties with it, it is obvious that in many cases dentures which were unsatisfactory by the criteria of the survey examination were not said to cause difficulties by the wearer. For example 60% of full lower dentures which had a base which moved (Table 8,11) were said by the wearer to be "about right" in terms of fit. It would appear that there is a fairly high level of tolerance of the problems which full dentures can cause.

As with the partially-dentured we were interested to see what proportion of people with full dentures wore them all the daytime and experienced none of the problems we have discussed. Of all those who had been fitted with full

dentures just under a third (31%) wore them all day and had no problems. We asked the other 69% whether or not they were planning to visit the dentist to see if anything could be done about their dentures. About one in four said they were planning to visit the dentist, and three in four said they were not. It would appear therefore that for many denture wearers the problems either did not seem particularly serious or they were fairly resigned to the situation continuing as it was.

8.4 The Circumstances of Total Tooth Loss.

Since the event of full clearance is so final, and constitutes a mark of failure if the aim of the dental services is to enable adults to rely on natural teeth throughout most of life, we were interested to find out more details about the circumstances which surrounded the final loss of natural teeth. During the interview we asked a series of questions concerning the situation at the time of, and prior to, the final extractions. This information is of course subject to memory, but all the evidence suggests that the occasion is a sufficient landmark in people's lives to be fairly reliably reported. To minimise any effect of memory we did in fact limit the analysis to those people who had lost the last of their natural teeth within the five years prior to the survey. Limiting the time span in this way has the added advantage that we are talking about circumstances that are still current.

There were, in all, 132 people in the sample who had lost the last of their natural teeth within the five years prior to the survey. Almost half of them (47%) had gone straight to full clearance without any previous denture experience at all. We asked them how many teeth they had lost in that last course of treatment and the results are shown in Table 8.14.

Among those who went to full dentures with no previous denture experience over half lost more than twenty teeth, while only 17% lost fewer than twelve teeth. Even among those who did previously have a denture one in ten said they lost more than twenty teeth at full clearance.

Table 8.14
THE NUMBER OF TEETH EXTRACTED AT FULL CLEARANCE

Number of teeth extracted	Adults with no natural teeth, whose full clearance was in the 5 years prior to the survey		
	No previous denture experience	Previous denture experience	All
	%	%	%
1-11	17	70	46
12-20	31	20	25
21 or more	52	10	29
	100	100	100
BASES	62	70	132

Base numbers re-weighted.

For those who had their final extractions within a fairly short period before the survey we could check in the Dental Estimates Board records whether they had remembered correctly how many teeth they lost on the last occasion. As we expected, their memories about the final loss of natural teeth were quite vivid and accurate as to the number of teeth extracted. For 21 of the 26 people for whom we could make this comparison the number of teeth stated in the interview was the same as, or differed by not more than 3 teeth from, the number recorded by the dentist.

Among those whose full clearance was in the 5 years prior to the survey a considerable proportion, 14%, said they were under 30 years of age when they lost the last of their natural teeth, and as we would expect, the numbers of teeth lost on the last occasion among these young people were particularly high, more than half of them (55%) having had extractions involving more than twenty teeth (Table 8.15) and only just over one quarter (27%) having had extractions involving fewer than twelve teeth.

Table 8.15

THE NUMBER OF TEETH EXTRACTED AT FULL CLEARANCE, BY AGE AT FULL CLEARANCE

Number of teeth extracted	Adults with no natural teeth, whose full clearance was in the 5 years prior to the survey		
	Age at full clearance (years)		All
	Less than 30	30 or over	
	%	%	%
1-11	27	48	46
12-20	18	27	25
21 or more	55	25	29
	<hr/> 100	<hr/> 100	<hr/> 100
BASES	19	113	132

Base numbers re-weighted.

There was no difference between the sexes in the proportion who lost more than twenty teeth on the last occasion (Table 8.16) but considerably more women lost fewer than twelve teeth (54% of women lost fewer than 12 teeth compared to only 35% for men). This difference reflects the fact that proportionally more women who became edentulous already had a denture (62% of the women had a denture compared to 43% of the men).

Table 8.16

THE NUMBER OF TEETH EXTRACTED AT FULL CLEARANCE, BY SEX

Number of teeth extracted	Adults with no natural teeth, whose full clearance was in the 5 years prior to the survey		
	Males	Females	All
	%	%	%
1-11	35	54	46
12-20	35	18	25
21 or more	30	28	29
	<u>100</u>	<u>100</u>	<u>100</u>
BASES	60	72	132

Base numbers re-weighted.

When asking about the time during which the informant still had some natural teeth, we asked whether he or she went to the dentist for a regular check-up, an occasional check-up, or only when having trouble (Table 8.17). Three quarters (75%) of those who had become edentulous in the 5 years before the survey said they had only gone when having trouble, 6% said they had gone for an occasional check-up and 19% said they had gone for a regular check-up. There were no differences between the regular and irregular attenders in the number of teeth lost on the last occasion.

Table 8.17

THE NUMBER OF TEETH EXTRACTED AT FULL CLEARANCE, BY PREVIOUS DENTAL ATTENDANCE

Number of teeth extracted	Adults with no natural teeth, whose full clearance was in the 5 years prior to the survey			
	Previous attendance			All
	Regular check-up	Occasional check-up	Only when having trouble	
	%	%	%	%
1-11	42	*	44	46
12-20	29	*	23	25
21 or more	29	*	33	29
	<u>100</u>		<u>100</u>	<u>100</u>
BASES	25	8	99	132

Base numbers re-weighted.

*Base number too small to give percentages.

A high proportion, 38%, of those who had become edentulous in the 5 years before the survey said that they had never had any of their natural teeth filled. The number of teeth extracted did not differ according to whether or not the person had ever had restorative treatment (Table 8.18) and in many cases, therefore, large numbers of teeth were extracted on the last occasion even among people who had experienced restorative dentistry.

Table 8.18

THE NUMBER OF TEETH EXTRACTED AT FULL CLEARANCE, BY WHETHER EVER HAD FILLINGS

Number of teeth extracted	Adults with no natural teeth, whose full clearance was in the 5 years prior to the survey		
	Had fillings	Did not	All
	%	%	%
1-11	45	46	46
12-20	26	24	25
21 or more	29	30	29
	<hr/> 100	<hr/> 100	<hr/> 100
BASES	82	50	132

Base numbers re-weighted.

In the interview we also asked if the informant suggested to the dentist that the teeth should be taken out or whether it was the dentist who suggested it. Somewhat more people said that they themselves had suggested full clearance (56% said they had suggested it, and 44% said that the dentist had suggested it), but the number of teeth extracted did not vary according to who suggested the extractions (Table 8.19). Thus the decision to extract large numbers of teeth did not come from the patients alone, nor from the dentists alone.

Table 8.19

THE NUMBER OF TEETH EXTRACTED AT FULL CLEARANCE, BY WHO SUGGESTED EXTRACTION

Number of teeth extracted	Adults with no natural teeth, whose full clearance was in the 5 years prior to the survey		
	Informant suggested	Dentist suggested	All
	%	%	%
1-11	44	48	46
12-20	24	26	25
21 or more	32	26	29
	<hr/> 100	<hr/> 100	<hr/> 100
BASES	74	58	132

Base numbers re-weighted.

Perhaps the most striking result of this section is the high proportion of people who had massive extractions and the high proportion who went straight to full clearance without ever having had dentures before. It has been stated that the transition from natural teeth to dentures should be a gradual process,

commencing with a partial denture and progressing gradually to full dentures*. This ideal is clearly far from being met at the present time.

The survey data describing the circumstances of final clearance cannot, of course, provide evidence of the condition of the teeth which were extracted. For this reason we asked the Scottish Home and Health Department and the Scottish Dental Estimates Board if we could trace, through their records, the people in our sample who had a full clearance during the year following the survey. In this way, we can examine the dental condition as found by the dental examiner and compare it with the outcome of later treatment. The results of this analysis are given in Chapter 10.

* The Nature of Prosthetic Dentistry - International Dental Journal Vol 16 No 4
December 1966

John Osborne
Niels Brill
Björn Hedegård

9 The Potential Need for Dentures

9.1 The Potential Need for Dentures Among Adults Who Rely Wholly on Natural Teeth

Of the people in our sample who still had some natural teeth 35% had also been fitted with dentures whereas 65% had never had any dentures. The number of natural teeth present among those who relied wholly on natural teeth varied very greatly from person to person and there was obviously some potential need for dentures which was, as yet, unmet. We examined the data for all those who still had some natural teeth but no dentures to make an estimate of the potential need for dentures.

To measure the extent of this unmet need some criteria had to be adopted whereby a decision could be made for each person based on the data collected in the dental examination. A need for dentures was said to exist in the following cases* :-

"If, when any unrestorable teeth, roots and teeth in need of extraction for periodontal reasons were removed, a person had any front[#] teeth missing or three adjacent back[#] teeth (excluding wisdom teeth) missing then some replacement was required".

Defining denture need in this way ignores some of the clinical factors which a dentist might take into account when providing treatment, but this is unavoidable in survey conditions. Doubtless other definitions are possible, and some readers may feel that the criteria used are too stringent, thus leading to an estimate of the maximum potential need for dentures. Nevertheless we believe our measures do provide a useful starting point for considering the extent of unmet denture need.

When the above definition is applied to the survey data the proportion of people with some natural teeth who have or should have dentures increases sharply from 35% to 58%.

We have seen in earlier chapters that the pattern of dentures actually provided for dentate adults is very varied and, what is more, has a variable success rate in terms of whether the dentures are worn (Chapter 7). We were therefore interested to look closely at the pattern of denture that appeared to be necessary for those in need of a denture. To do this we had to define at what level a full denture rather than a partial denture would be provided for either jaw, and the following definition was used :-

*This is the same definition as was used in the England and Wales study.

[#]Front = 3-3; Back = 4-7.



- (i) The Upper Jaw :- a partial denture would be provided if, in each quadrant, there were two natural teeth remaining up to but not more than three tooth positions apart; otherwise a full upper denture would be provided
- (ii) The Lower Jaw :- a partial denture would be provided if, in each quadrant, there was at least one natural tooth remaining in the position 3-7; otherwise a full lower denture would be provided

There are many different definitions that could be used to assess when the need passes from a partial denture to a full denture for either jaw. Again when applied systematically to the survey data the above definitions do not take into account all the factors which a dentist would take into consideration, such as the balance and stresses of the two jaws, and to some extent the patient's preference. Table 9.1 shows the potential need for different types of denture when the above definition is used, as well as giving the denture pattern which existed among those people who had already been provided with dentures to complement their natural teeth.

Table 9.1
DENTURE PATTERN AMONG POTENTIAL DENTURE WEARERS AND AMONG
THE PARTIALLY-DENTURED

Denture pattern	Dentate adults who need a denture [#]	Dentate adults who have a denture
	%	%
Full upper, full lower	*	4
Full upper, partial lower	4	16
Full upper, no lower	*	26
Partial upper, partial lower	30	10
Partial upper, no lower	39	44
Partial upper, full lower	*	1
No upper, partial lower	27	2
No upper, full lower	-	1
	100	100
BASES	271	410

Base numbers re-weighted.

[#]Denture need according to the survey definition.

*Less than 0.5%.

Among those who relied wholly on natural teeth but needed a denture on the survey definition, virtually all the potential need was for a partial denture in one or other jaw. Very few people needed a full denture in either jaw, but where this occurred it was almost always a full upper denture opposing a partial lower denture (4% needed this pattern of dentures). The most frequent need was for a partial upper denture only, this accounting for 39% of all the potential denture need among those who had not previously had a denture. A partial denture in both jaws was required by just under one third (30%) of people, and a partial denture in the lower jaw only was required by 27% of people.

It is of value to compare these results with the situation which we found among those who, at the time of the survey, had been provided with dentures to complement their natural teeth. One might expect the pattern of dentures required by those with no previous denture experience, to be similar to that among those who had already been provided with dentures to complement their natural teeth, but this is not the case. Very few of the potential denture wearers needed a full denture (in either jaw) and yet, as we have seen, a high proportion (42%) of the partially-dentured have a full upper denture. This suggests either that where there is a need for a full upper clearance on the survey definition, this need is quickly met, or that people are having full upper clearances where according to our survey definition less than a full upper denture is needed. We shall see in the next chapter that other evidence points strongly to the latter being the case. On the other hand there was considerable apparent need for a partial lower denture only, a pattern which occurred infrequently among those already partially-dentured.

We also looked in some detail at whether the partial dentures would be needed to replace front or back teeth (or both), and we give the results for the three main denture pattern needs in Table 9.2

Table 9.2
POTENTIAL NEED FOR DENTURES BY TYPE OF DENTURE AND TEETH REPLACED

Denture needed to replace:	Dentate adults who need a denture#			
	Dentures needed			
	Partial upper, partial lower		Partial upper, no lower	
	U %	L %	U %	L %
Front* teeth only	1	**	1	3
Back* teeth only	58	89	46	75
Front and back teeth	41	11	53	22
	100	100	100	100
BASES	81		106	
			71	

Base numbers re-weighted.

#Denture need according to the survey definition.

*Front = 3-3; Back = 4-7.

**Less than 0.5%.

The need for a partial denture to replace front teeth only (in either jaw) was very infrequent, suggesting that most of the need for front tooth dentures is quickly met. In the upper jaw the need for a denture to replace back teeth only and the need for a denture to replace both front and back teeth occurred in fairly similar proportions of cases, but in the lower jaw the most frequent unmet need was for replacement of back teeth only.

In addition we were interested to see if those partial dentures needed were the same in terms of front versus back teeth, as those already provided; for this purpose we looked at the two denture patterns which occurred frequently among the partially-dentured and for which there was considerable need (Table 9.3).

Table 9.3
FRONT VERSUS BACK TOOTH REPLACEMENT,
FOR TWO PARTIAL DENTURE PATTERNS

Denture replaces:	Dentate adults who have a denture		
	Partial upper, no lower	Partial upper, partial lower	
	U %	U %	L %
Front* teeth only	21	6	3
Back* teeth only	12	30	64
Front and back teeth	67	64	33
	100	100	100
BASES	181	41	

Base numbers re-weighted.

*Front = 3-3; Back = 4-7.

Where the only denture provided was a partial upper denture, just over one fifth (21%) of these dentures replaced only front teeth, whereas we have seen that there is very little current unmet need for this particular replacement pattern (Table 9.2) again suggesting that front tooth need is quickly recognised and met. On the other hand only 12% of these partial upper dentures replaced back teeth only, yet Table 9.2 has shown that almost half (46%) of the survey need for a partial upper denture alone is for back tooth replacement only, suggesting that this particular need is not met to the same extent as front tooth replacement. There is a similar result where the dentures consist of a partial denture in each jaw, in that fewer of the dentures replaced only back teeth than would seem to be indicated by Table 9.2.

It is also of interest to compare the pattern of dentures which appears to be unmet with the wearing patterns of different types of dentures. Some of the potential need is, in fact, for those types of dentures which, where provided, were least worn; 30% of the potential need was for a partial upper and partial lower denture, but among people with this combination only a third wore both dentures (Table 7.9); 39% of the potential need was, on the other hand, for a partial upper denture only, and among those provided with this pattern of dentures four out of five wore them all day.

We have seen in Chapter 7 that the denture pattern among those who have been fitted with a denture to complement their natural teeth varied according to age and we were therefore interested in whether the potential need also varied with age. The results are given in Table 9.4. As well as giving the types of dentures required we also give, at the foot of the table, the proportion of people in each age group who are in need of a denture of some sort.

Table 9.4
POTENTIAL NEED FOR DENTURES, FOR ADULTS OF DIFFERENT AGES

Dentures needed	Dentate adults who need a denture#					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
Full upper, full lower	*	-	-	-	1	*
Full upper, partial lower	-	4	3	1	21	4
Full upper, no lower	-	-	-	*	-	*
Partial upper, partial lower	15	33	32	34	43	30
Partial upper, no lower	50	36	41	38	22	39
Partial upper, full lower	-	-	-	2	-	*
No upper, partial lower	35	27	24	25	13	27
No upper, full lower	-	-	-	-	-	-
	100	100	100	100	100	100
BASES - dentate adults who need a denture	65	74	62	47	24	271
Of all those who rely wholly on natural teeth, proportion who need a denture	19%	36%	48%	76%	74%	36%

Base numbers re-weighted.

#Denture need according to the survey definition.

*Less than 0.5%.

Table 9.4 shows that, overall, the proportion whom we defined as being in need of a denture rose steadily with age, from 19% among those aged 16-24 to 74% among those aged 55 and over. The type of denture required also varied with age. Amongst the youngest age group (16-24) the most frequent need was for a partial upper denture only, this accounting for 50% of the need in this age group. Over one third (35%) of the potential need among the youngest adults was for a partial lower denture only. The other 15% of the denture need among the youngest adults was made up of a partial denture in each jaw. As age increased, the proportion who required a partial upper denture only, and the proportion who required a partial lower denture only, both decreased and the proportion who needed a partial denture in both jaws increased. There was little need for a full denture in either jaw except among the oldest adults (55 and over), among whom we defined one fifth as needing a full upper denture opposing a partial lower denture.

How long the potential need for dentures for these people has existed, or how long it is likely to remain unmet is impossible to tell from the survey. It is of interest to examine this need according to dental attendance pattern, since the regular attenders are not only in more frequent contact with a dentist but they are demonstrating by their behaviour that they are interested in maintaining their dental health. The results for the different attendance patterns are given in Table 9.5.

Table 9.5
POTENTIAL NEED FOR DENTURES BY DENTAL ATTENDANCE PATTERN

Dentures needed	Dentate adults who need a denture#			
	Regular check-up	Occasional check-up	Only when having trouble	All
	%	%	%	%
Full upper, full lower	-	-	*	*
Full upper, partial lower	-	4	5	4
Full upper, no lower	-	-	*	*
Partial upper, partial lower	29	20	32	30
Partial upper, no lower	33	48	40	39
Partial upper, full lower	-	-	1	*
No upper, partial lower	38	28	22	27
No upper, full lower	-	-	-	-
	100	100	100	100
BASES - dentate adults who need a denture	66	27	178	271
Of all those who rely wholly on natural teeth, proportion who need a denture	23%	26%	48%	36%

Base numbers re-weighted.

#Denture need according to the survey definition.

*Less than 0.5%.

By far the greatest potential need for dentures was among those who only went to the dentist when they were having trouble with their teeth. Among these people almost half (48%) were defined as needing a denture, compared to about a quarter of other people (23% of regular attenders and 26% of occasional attenders). There was also slightly more need of extensive replacement among the irregular attenders. As expected, it is those who go least frequently to the dentist who have the greatest potential need for dentures. There is, however, a considerable amount of denture need even among those who do go to the dentist regularly.

In Table 9.6 we summarise the situation for people of different ages and attendance patterns, by giving the proportion in each group whom we defined as being in need of a denture.

The difference with attendance pattern occurred fairly consistently in each age group. The youngest regular attenders (16-24) had the least potential need, although even among them, over one in ten (12%) needed a denture by the survey definition. Among irregular attenders those in the youngest age group were in the most favourable position, one in four of them being in need of a denture. By the age of 25-34 a half of the irregular dental attenders had a denture need, this proportion rising to four out of five of the irregular attenders in the age group 45-54.

Table 9.6
POTENTIAL NEED FOR DENTURES, FOR DIFFERENT AGES AND ATTENDANCE PATTERNS

Attendance pattern	Adults who rely wholly on natural teeth					
	Proportion who need a denture**					
	Present age					
	16-24	25-34	35-44	45-54	55 and over	All ages
Regular check-up	12% (113)	17% (77)	23% (48)	70% (27)	* (14)	23% (279)
Occasional check-up	15% (55)	35% (28)	* (11)	* (5)	* (3)	26% (102)
Only when having trouble	26% (164)	50% (101)	68% (67)	84% (30)	* (15)	48% (378)
All	19% (333)	36% (206)	48% (126)	76% (62)	74% (33 [#])	36% (760 [#])

Base numbers (re-weighted) are given in brackets.

*Base numbers too small to give percentages.

[#]Includes one person who had never been to a dentist.

**Denture need according to the survey definition.

These estimates of the potential need for dentures have, of course, been made on the basis of the minimum number of teeth being extracted (ie only those teeth which the dentist recorded as being in need of extraction). We have seen that the pattern of dentures which had been provided to complement the natural teeth is somewhat different from our estimates made on the basis of minimal extraction, in that among the partially-dentured the replacement was considerably more extensive. In Chapter 10 we shall look in some detail at the number of teeth extracted at the time of getting dentures fitted.

9.2 The (Further) Need for Dentures Among the Partially-Dentured

We also scrutinised the dental condition of those people who had been fitted with a denture to see whether, on our definition, there was a denture need in a jaw previously not fitted, or whether further tooth loss or the current dental condition meant that a full denture was required in a jaw which previously had had a partial denture. Of the 410 partially-dentured people 45% needed some further provision of dentures and 55% did not. There was relatively little evidence of the jaw or jaws concerned requiring large extensions of the number of teeth on the denture, the majority of the need being the provision of a denture in a jaw not previously fitted. We examined the situation separately for the upper and lower jaws, and the results are given in Table 9.7.

Among the 45% who had some further denture need it was mainly in the lower jaw that this need occurred; only 10% had no (further) denture need in the lower jaw whereas 73% required a partial lower denture, 6% required a full lower denture, and 11% had a partial lower denture but needed a full one. In the upper jaw the position was quite different, in that the majority (82%) of those with some denture need had no (further) denture need here, 4% needed a partial upper denture, and 14% needed their partial upper denture replacing by a full upper denture.

Table 9.7
FURTHER NEED FOR DENTURES AMONG THE PARTIALLY-DENTURED

Dentures needed	Partially-dentured adults who have some further denture need [#]	
	Upper jaw	Lower jaw
	%	%
No (further) denture	82	10
Partial denture (no previous denture)	4	73
Full denture (no previous denture)	-	6
Full denture (previous partial denture)	14	11
	100	100
BASE - partially-dentured adults who have some further denture need	184	
Proportion of all partially-dentured adults who have some further denture need	45%	

Base number re-weighted.

[#]Denture need according to the survey definition.

We examined this further denture need for partially-dentured people of different ages, and the proportion who had some further need increased steadily from 24% among those aged 16-24 to 66% among those aged 55 and over. As we would expect, more of irregular dental attenders had some further need (52%), compared to 36% of the regular attenders, but among those regular attenders who did have some need, the pattern of dentures required was virtually the same as for the irregular attenders.

We have seen in Chapter 7 that among people fitted with a full upper denture only (while still retaining some natural lower teeth) nearly all of them wear the denture all day. We looked in detail at this group to see, on our definition, how many needed a partial lower denture as well as the full upper denture, and found that 62% did. But among the people in the survey who had a full upper and a partial lower denture only a half wore them all day, and it was the lower partial denture that was responsible for the reduction in wearing. It seems unlikely therefore that, if this potential need for partial lower dentures was met, it would prove to be a very successful contribution towards dental fitness.

We have defined the potential need for partial dentures on somewhat ideal grounds. It is unlikely that this potential need would ever be wholly met especially while many other demands are being made on limited dental resources. It is of particular interest in terms of the efficient allocation of resources that dentists and patients between them, overtly or tacitly, appear to have left unmet some of the denture needs which when supplied result in least success.

9.3 The Potential Need for Full Clearance

We have so far dealt with the potential need for dentures in conjunction with natural teeth. Another estimate of considerable interest is, of course, the proportion of people who although retaining some natural teeth at the time of the survey should really have been edentulous. To a large extent we reached this

estimate through the application of our definitions of need for dentures in conjunction with natural teeth, but one extra refinement was required. It is uncommon for a dentist to provide a full lower denture to oppose natural teeth in the upper jaw so wherever our definition resulted in the person needing a full lower denture we have included them in the group who need full clearance*.

Overall only 3% of those with some natural teeth (or 2% of all the people in the survey) were, at the time of the survey, in need of full clearance by the survey definitions. Very little of this need was the result of adding the above refinement, the majority of the need for full clearance being among those partially-dentured people whom we had defined as in need of a full denture in each jaw independently. If this small number of people whom we defined as being in need of full clearance were to lose the last of their natural teeth the proportion of adults in Scotland with no natural teeth would become 46% instead of 44%.

Although, as mentioned above, it is unlikely that all potential denture need would ever be met, one might expect that it is among those whom we defined as in need of full clearance that the need would be met without too much delay. We shall see in Chapter 10, however, that this is not the case, and that full clearances occur where the denture need is, by our definitions, considerably less extensive, and in some cases not apparent at all.

*This is the same criteria as used in Vital and Health Statistics Series 11, Number 27, page 8 : "Total Loss of Teeth in Adults. United States 1960-1962" (U.S. Department of Health, Education and Welfare).

10 Dental State Prior to the Provision of Dentures

In Chapter 9 we discussed at length the potential need for dentures, both partial and full. The shortcoming of such an approach is that the potential demand can exist unmet for a very long time because dentures can only be provided if the patient presents himself for treatment. In addition the definition of denture need that was used in the discussion is not necessarily the definition used in practice and therefore may not give a very good indication of who is likely to get dentures.

In order to throw some light on the divergence of theory and practice we asked the Scottish Home and Health Department and the Scottish Dental Estimates Board if we could look at the records to see how many of the people in our sample had had dental treatment within approximately a year of the survey fieldwork*.

We found 53 people with some natural teeth at the time of the survey whose subsequent dental treatment had involved the provision of dentures (other than replacement dentures). This was made up of 19 people who were fitted with a denture to complement their natural teeth for the first time, 22 who received a more extensive denture but still retained some natural teeth and 12 who became edentulous. In Sections 10.1 - 10.3 we make some comparisons between the treatment received by these 53 people and the treatment need as defined in Chapter 9.

10.1 First-Time Provision of Dentures in Conjunction With Natural Teeth

We estimated that 327[#] people in our sample had no dentures but needed some to complement their natural teeth. In the period of approximately one year from the survey fieldwork only 15 of these people were fitted with dentures through the National Health Service, but in addition 4 people whom we had not considered to be in need of dentures received them. In Figure 10.1 we compare, for these 19 people, the patterns of dentures which they needed by the survey definition and the patterns of the dentures with which they were subsequently fitted.

For the 4 people who by the survey definition had not needed dentures at the time of the survey, it was in the upper jaw that dentures were fitted; 2 were fitted with a partial upper denture and the other 2 lost all their upper natural teeth. Among the 15 for whom we had predicted some denture need there were only 5 where the pattern of dentures provided agreed with our prediction (this agreement not being confined to any individual tooth pattern).

*See Section 2.11.

[#]Unweighted figure.

Figure 10.1

PATTERN OF DENTURES, ACCORDING TO THE SURVEY PREDICTION AND TO THE TREATMENT RECEIVED.

		TREATMENT RECEIVED					
		Full upper, partial lower		Full upper, no lower		Partial upper, partial lower	
		Partial upper, no lower		No upper, no lower		TOTAL	
SURVEY PREDICTION	No dentures	-	2	-	2	-	4
	Full upper, partial lower	1	-	1	-	-	2
	Full upper, no lower	-	-	-	-	-	-
	Partial upper, partial lower	1	-	1	1	1	4
	Partial upper, no lower	-	1	1	1	-	3
	No upper, partial lower	-	-	2	2	2	6
	TOTAL	2	3	5	6	3	19

Among the 5 people who went to a full upper clearance 2 had not (as mentioned above) met our requirement for needing a denture at all, 2 we had classified as in need of a partial upper denture, and one we had classified as being in need of a full upper clearance.

The survey definition of need for dentures was made on the basis of only unrestorable teeth being taken out. The biggest difference that occurred between the survey predictions and the treatment received was in whether or not decayed teeth which our examiners said could be restored were in fact restored or extracted.

In the courses of treatment that led to these 19 people having their initial provision of dentures in conjunction with natural teeth 95 teeth were extracted. Of these teeth only 14% were unrestorable by our criteria (13% due to decay and 1% due to periodontal involvement); a further 30% were decayed but restorable, 20% were filled and decayed but restorable, 20% were filled, otherwise sound and 16% were sound and untreated.

When we look in particular at those who went to a full upper clearance (5 people) we find that in the course of treatment concerned they lost, on average, 10.8 teeth from the upper jaw; this average consisted of 1.4 teeth unrestorable due to decay, 2.6 decayed but restorable teeth, 2.4 filled and decayed teeth, 2.4 filled, otherwise sound teeth and 2.0 teeth that were sound and untreated.

10.2 Extensions to Dentures in Conjunction With Natural Teeth

In Section 9.2 we discussed the potential, further, need for dentures among the partially-dentured, confining the analysis to major changes of denture pattern, that is the provision of a denture in a jaw for the first time, or the replacement of a partial denture by a full denture in that jaw. Basing our estimate on major changes of denture pattern in this way resulted in 219* of the 490* partially-dentured being estimated as having some further denture need (this was made up of 34 people who would become edentulous and 185 who would still retain some natural teeth). In this section we confine ourselves to the kind of treatment which resulted in the person still retaining some natural teeth.

In the year after the survey only 6 partially-dentured people whom we had defined as having some further denture need in fact had a major change of denture pattern which did not render them edentulous; but in addition 2 partially-dentured people whom we had not considered as needing any further denture actually had a major change of denture pattern. In Table 10.1 we list these 8 people, giving their denture pattern at the time of the survey, their denture need according to our definitions, and their resulting denture pattern after treatment.

Table 10.1

FURTHER DENTURE NEED, AND TREATMENT RECEIVED, AMONG THE PARTIALLY-DENTURED

Person number	Dentures at time of survey	Further denture need [#]	Dentures after treatment
1	Partial upper, no lower	- Partial lower	Partial upper, partial lower
2	Partial upper, no lower	- Partial lower	Full upper, no lower
3	Partial upper, no lower	- Partial lower	Full upper, no lower
4	Partial upper, no lower	- Partial lower	Full upper, no lower
5	Partial upper, no lower	Full upper -	Full upper, partial lower
6	Full upper, no lower	- Full lower	Full upper, partial lower
7	Partial upper, no lower	- -	Full upper, partial lower
8	Partial upper, partial lower	- -	Full upper, partial lower

[#] Denture need according to the survey definition.

*Unweighted figures.

Of the 6 people for whom we had predicted some further denture need and who had a major change of denture pattern, only one, person No 1, actually received the dentures which we had predicted (this person received a partial lower denture to oppose the partial upper denture existing at the time of the survey).

A further three adults (persons 2-4 in Table 10.1) had at the time of the survey a partial upper denture opposing only natural teeth in the lower jaw, and were defined as needing a partial lower denture to oppose the denture in the upper jaw, but in fact lost all their upper natural teeth in the year after the survey. In each of these three cases no denture was provided for the lower jaw.

One person (person No 5) had a partial upper denture at the time of the survey, was defined as needing this replaced by a full upper denture, but was fitted with a full upper denture and a partial lower denture in the year after the survey.

There was one person (person No 6 in Table 10.1) whom we had defined as requiring full clearance but who in fact still retained some natural teeth after treatment. This person received a partial lower denture instead of the full lower denture predicted by the survey definitions.

Both of the partially-dentured adults for whom we had predicted no major change of denture pattern (persons 7 and 8) lost all their upper natural teeth in the year after the survey.

Thus among the 8 partially-dentured adults who had a major change in denture pattern in the year subsequent to the survey the most common occurrence, in those cases where our prediction differed from the treatment received, was the remaining upper natural teeth being extracted whereas the survey prediction was a partial denture in the upper jaw.

We have been considering whether the denture treatment obtained within a year of the survey bore any relationship to our estimated denture need. The converse of this is how many of the people whom we estimated as needing denture provision obtained it within a year of the survey. There were 24 partially-dentured adults who, on the survey definition, required a full upper clearance (while still retaining some lower natural teeth); in the year after the survey only one of these people was fitted with a full upper denture.

Those partially-dentured adults who, in the year after the survey, had a full upper clearance, lost on average 6.6 teeth from the upper jaw, of which 0.2 were unrestorable due to decay, 1.3 were decayed but restorable, 0.8 were filled and decayed, 2.8 were filled, otherwise sound and 1.5 were sound and untreated at the time of the survey examination.

In addition to the 8 partially-dentured people who had a major change in denture pattern (Table 10.1) there were 14 whose treatment in the year after the survey involved having further teeth extracted and an extended denture fitted, this treatment not resulting in a major change of denture pattern. We could not estimate from the survey data what the potential need for extensions of partial dentures might be since we could not predict the circumstances in which extractions of only a few teeth would result in the need for additional replacement. We did, however, look to see whether there was any (survey) need for a major change in

denture pattern among these 14 people, and found that the majority (9) did not have any estimated denture need involving going from a partial denture to a full denture in either jaw, or needing a denture for a jaw previously without a denture; the other 5 did have such an estimated need but did not receive it in their course of treatment. In most cases this unmet need comprised the initial provision of a partial lower denture.

10.3 People Who Became Edentulous Within About a Year of the Survey

Among those for whom we had examination information we estimated that, on the survey definition, 42 people needed a full clearance (39 of these were partially-dentured at the time of the survey). In the year subsequent to the survey 12 people in our sample had dental treatment which resulted in them becoming edentulous. Only 3 of these were among the 42 whom we had defined as needing full clearance.

All except 3 of these 12 were under thirty-five when we interviewed them, most of them being in the age group 25-34; and all except 2 went to the dentist only when they had trouble with their teeth. The 12 came from various parts of Scotland: there were some from Glasgow, some from Edinburgh, some from the Highlands and some from the Islands.

The 12 who became edentulous were made up of 8 people who went straight to full clearance with no former denture experience, and 4 who had previously had dentures in conjunction with natural teeth. Among the 8 with no previous denture experience only one met our criteria for full extraction; 2 needed a full upper denture and a partial lower denture, 2 needed a partial denture in both jaws, one needed a partial denture in the upper jaw, and two demonstrated no denture need at all on our definition. Among the 4 with denture experience 2 needed a full clearance on our definition and 2 were classified as needing a full upper denture and a lower partial denture on our criteria.

In Table 10.2 we give for each of these 12 people their age, sex, dental attendance pattern and their potential denture need by our criteria. We show in Figure 10.2 the dental condition of the teeth as we found them at the time of the survey for the individuals who subsequently (within about a year) became edentulous. Part (a) of the figure shows the 8 who had no previous denture experience and (b) shows the 4 who had dentures when we interviewed them.

At the time of full clearance these 12 people lost, on average, 19.0 teeth (those with no previous denture experience lost on average 21.8 teeth, and those with previous denture experience 13.5 teeth). Of these 19.0 teeth 4.7 were unrestorable due to decay, 1.6 were in need of extraction for periodontal reasons, 2.8 were decayed but restorable, 0.8 were filled and decayed but restorable, 3.3 were filled, otherwise sound and 5.8 were sound and untreated. None of the 8 people with no previous denture experience had any teeth in need of periodontal extraction, teeth in this condition only occurring among the 4 who had dentures at the time of the survey. Thus among the teeth extracted at full clearance only one third were classified by the survey dentists as in need of extraction. Almost half in fact showed no signs of decay.

Table 10.2

AGE, SEX, DENTAL ATTENDANCE AND POTENTIAL
DENTURE NEED, FOR THOSE WHO BECAME EDENTULOUS

Person number	Age(years) at full clearance	Sex	Attendance	Survey estimate of denture need
1	33	Female	Regular	No denture need
2	31	Female	Irregular	No denture need
3	25	Female	Irregular	Partial upper, no lower
4	26	Female	Irregular	Partial upper, partial lower
5	28	Female	Irregular	Partial upper, partial lower
6	31	Male	Irregular	Full upper, partial lower
7	33	Female	Irregular	Full upper, partial lower
8	23	Male	Irregular	Full upper, full lower
9	25	Female	Irregular	Full upper, partial lower
10	41	Male	Occasional	Full upper, partial lower
11	55	Female	Irregular	Full upper, full lower
12	60	Male	Irregular	Full upper, full lower

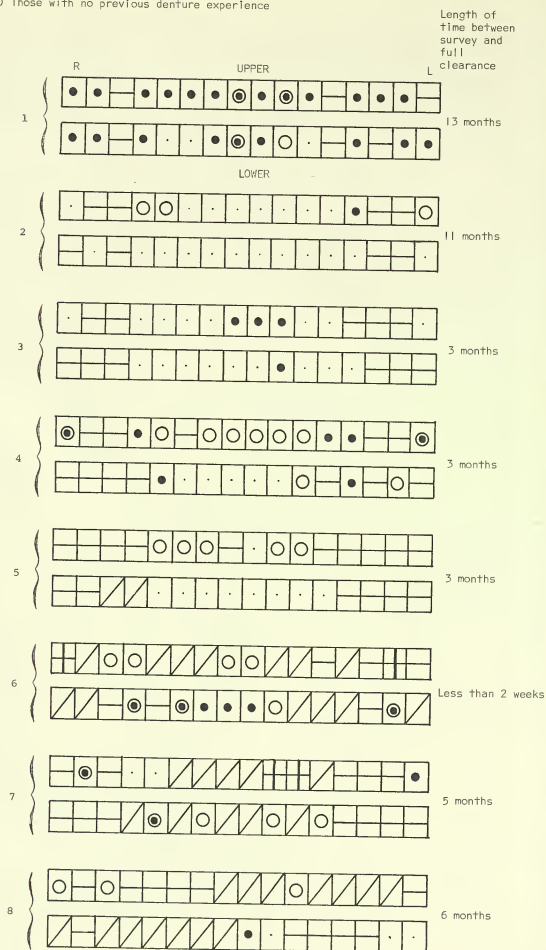
In Chapter 8 we discussed in detail some of the circumstances of full clearance among people who had become edentulous in the five years preceding the survey. We commented on the large numbers of teeth extracted at full clearance especially when the person had no previous experience of dentures. For those who lost their teeth before the survey we had no evidence of the state of their teeth, and it is therefore of interest to look at the small group for whom we have this information and see whether the extraction pattern seemed similar to that described earlier.

Among the 12 people who became edentulous in the year after the survey, the number of teeth lost at the final extraction ranged from 5 to 26. Among those who went straight from wholly relying on natural teeth to full clearance the tooth loss was particularly high, 5 of the 8 losing more than 20 teeth. In addition one of the people who had a partial denture at the time of the survey lost more than 20 teeth at full clearance. The pattern of loss was thus much the same as in the five years before the survey. It is probable therefore that the teeth that were lost then were in a comparable state to the teeth which were lost among those who became edentulous after the survey.

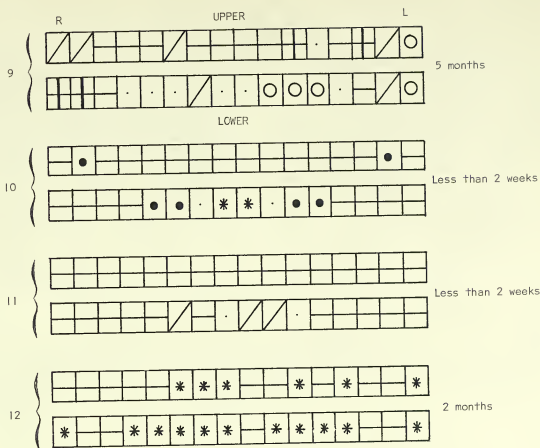
Figure 10.2

DENTAL CONDITION, AT TIME OF SURVEY, OF THOSE WHO SUBSEQUENTLY BECAME EDENTULOUS

(a) Those with no previous denture experience



(b) Those with previous denture experience



KEY

•	Sound and untreated
●	Filled and sound
⊙	Filled and decayed
○	Decayed, not previously treated
⚡	Unrestorable due to decay
⊞	Root
□	Missing
*	In need of periodontal extraction (with or without decay)

Three of the 6 who lost more than 20 teeth had no teeth at all classified by the survey examination as in need of extraction; on the other hand the other 3 had considerable numbers of teeth in this condition. Thus for half of those who had massive extractions in the year after the survey there was, by the survey criteria, little apparent dental need of such extensive clearance.

The people who are having massive extractions are of particular interest in any discussion of the circumstances of total tooth loss for, as we have seen, in a number of cases there was little apparent (survey) need for such extensive loss. Factors other than disease appeared to carry considerable weight both with the patient and the dentist. If, in the future, attitudes towards the acceptability of full dentures as a substitute for natural teeth were to alter, then a marked change would soon be seen in the level of total tooth loss in the young, since such a considerable part of the loss among the young was not directly due to disease.

10.4 The Proportion of Teeth Extracted for Different Reasons

Since there is in Scotland (as in England and Wales) a high proportion of edentulous people it is of significance to know what proportion of teeth were extracted for disease reasons and what proportion were lost for other reasons, because it takes no time at all for a high level of tooth loss to be interpreted as a high level of disease.

There have been many varying estimates of the proportion of teeth lost for different reasons, eg decay, periodontal trouble and the execution of other dental treatment, and we quote here 5 studies for which the proportions of teeth lost for these reasons have been worked out*. Most of these studies have been fairly restrictive in that they have been based on somewhat selective groups of people, but they do give us an indication of the ranges which have been found.

*

AUTHOR	SOURCE	PROPORTION OF TEETH LOST DUE TO:		
		<u>Decay</u>	<u>Periodontal disease</u>	<u>Treatment</u>
Brekhus, P.J. (1929)	Journal of American Dental Association 16:2237-2247	51%	32%	17%
Allen, E.F. (1944)	Journal of American Dental Association 23:453-458	49%	41%	10%
Krogh, H.W. (1958)	Journal of American Dental Association 57:670-675	40%	20%	40%
Andrews, G. and Krogh, H.W. (1960-61)	Dental Progress 1:130-134	38%	36%	26%
Abramowsky, L. and Buchner, A. (1967)	New York Journal of Dentistry 37:16-19	87%	5%	8%

The estimates of the proportion of teeth lost for different reasons were quite varied; the proportion lost for decay reasons ranged from 38% to 87%, the proportion lost for periodontal reasons ranged from 5% to 41%, and the proportion lost for treatment reasons (eg provision of dentures) ranged from 8% to 40%.

The overall proportion of teeth lost for disease reasons was about 90% for 3 of the studies, the lowest estimate being 60%. Figures of 90% lost for disease reasons and 10% lost for treatment (non-disease) reasons, are the ones often quoted as applying to the general population*. It is with such estimates in mind that we look at the reasons for tooth loss in the year after the survey, among three particular groups of people, those who became edentulous, those who had a full upper clearance (while still retaining some natural lower teeth), and those who had a partial denture for the first time.

If among the people who became edentulous within a year of the survey we make the (unrealistic) assumption that all teeth lost before the course of treatment leading to full clearance were lost for disease reasons we find that 29% of the teeth extracted for full clearance were filled, otherwise sound, or sound and untreated, and that a further 11% were decayed but restorable (Table 10.3).

Table 10.3

CONDITION OF TEETH, AT TIME OF SURVEY, AMONG THOSE WHO SUBSEQUENTLY BECAME EDENTULOUS

	%
Lost before survey (presumed diseased).....	41
Unrestorable (due to decay, and due to periodontal reasons).....	19
Restorable (decayed not previously treated, and filled and decayed).....	11
Sound (filled, otherwise sound, and sound and untreated).....	29
	100
BASE - teeth (tooth positions) among the 12 who became edentulous	384

This estimate of 40% of teeth lost for non-disease reasons is, if anything, an underestimate since among the teeth lost before the survey there will be some that were lost for non-disease reasons, for example the extraction of impacted wisdom teeth and any orthodontic extractions, or the provision of dentures.

Of particular importance perhaps is the number of teeth taken out when someone is fitted with a full upper denture to complement their natural teeth. In the previous estimate we counted such extractions as for disease reasons but we can look at the people who went to a full upper clearance after we interviewed them to see how reasonable such an assumption was.

*eg A. Sheiham : An evaluation of the success of dental care in the United Kingdom (British Dental Journal, Vol.135 No.6 Page 273).

Table 10.4
CONDITION OF UPPER TEETH, AT TIME OF SURVEY, AMONG THOSE WHO
SUBSEQUENTLY HAD A FULL UPPER CLEARANCE

	%
Lost before survey (presumed diseased).....	47
Unrestorable (due to decay, and due to periodontal reasons).....	4
Restorable (decayed not previously treated, and filled and decayed).....	22
Sound (filled, otherwise sound, and sound and untreated).....	27
	49
	100
BASE - upper teeth (tooth positions) among the 11 who had a full upper clearance	176

Table 10.4 shows that even among those who had a full upper clearance while still retaining some lower natural teeth, almost half (49%) of the upper teeth were extracted for non-disease reasons, and again this is, if anything, an underestimate since 47% of the teeth were missing already and presumed diseased.

We take the point further and look at those people who received a denture for the first time, but one which did not involve full upper clearance. Among these 14 people 136 teeth were already missing at the time of the survey, and a further 32 teeth were extracted in the year after the survey (some of the dentures replaced previously extracted teeth). Of these 32 teeth 4 were indicated as in need of extraction by our examination, 19 were decayed but restorable, and 9 were sound. Therefore, even in those cases where partial dentures are provided, a high proportion of the extractions were for non-disease reasons.

These estimates, from the survey, of the proportions of teeth lost for different reasons differ considerably from those often quoted, in that we have found considerably more teeth extracted for non-disease reasons and fewer extracted for disease reasons. It is interesting that of the 5 studies quoted above the one which is closest to our results was the only one of the 5 which was based on patients from a general practice.

Most of the other studies mentioned above give considerable weight to periodontal disease as a reason for extraction yet among the people in the survey who became edentulous or lost all their upper natural teeth within a year of the survey very few teeth were classified as in need of periodontal extraction (among those who went straight to full clearance there were, in fact, none). We re-examined these groups to see the extent to which the less serious gum conditions were present, on the hypothesis that our criteria for periodontal extraction may have been particularly stringent.

Among those who went straight to full clearance the periodontal involvement was no more and no less than among other people who at the time of the survey had some natural teeth. The most serious condition was a periodontal score of 2, 1e

inflammation circumscribing the tooth. Among those who had previously had dentures the position was somewhat different, in that almost half of the teeth extracted had a periodontal score of 6, indicating inflammation and a pocket of 3 mm or more in depth. Where the treatment subsequent to the survey involved the extraction of all upper natural teeth (some lower natural teeth being retained), the situation was much the same. Among the 5 people who had not previously had denture experience only one person had any teeth scored greater than 2 (this person had all remaining upper natural teeth scored 6). For 2 of the 6 people who had previous denture experience, recession of the gums was widespread, but there was no periodontal score greater than 2 among the other 4.

Thus among those people who already had a denture at the time of the survey (who were generally older than those who did not have a denture), periodontal disease would appear to carry more weight if the less serious conditions were accepted as a reason for extraction, but this is not the case among those who did not already have a denture.

The results of this section show that high levels of tooth loss and denture replacement are by no means indications of high levels of disease. Doubtless our criteria for extraction of teeth was a stringent one, and it is likely that in other studies some of the estimates that have been made of the proportion of teeth lost due to disease (see above) include some decayed teeth which on our criteria were indicated as being restorable. Nevertheless there still remains a high proportion of teeth which at the time of extraction and provision of dentures were perfectly sound on the examination criteria. Obviously the reasons that contribute towards the decision to extract are varied; they take into account the dentist's attitude, the patient's attitude, and the technical problems associated with the provision of treatment. Our results suggest that patient demand and the dentist's assessment of the prognosis for the patient, including anticipation of the patient's future need, carry more weight than is often allowed for in the assessment of reasons for tooth loss.

II. The Highlands and Islands

Earlier in the report we said that some of the greatest problems of providing a dental service occur in the least populated areas of Scotland. In this chapter we look at the problems associated with getting to the dentist in the Highlands and Islands, and we also compare the dental health of people living in the Highlands and Islands with that of people living in the rest of Scotland.

II.1 Problems of Getting to the Dentist in the Highlands and Islands

Our sample of people living in the Highlands and Islands were asked whether or not they had any problems in getting to the dentist; one fifth (20%) said they did have problems and four fifths (80%) said they did not. Although most people in the Highlands and Islands did not think getting to the dentist was a problem, for the minority who did, the difficulties encountered seemed to be fairly serious. Many of this group gave more than one reason for their difficulties. The main difficulties were lack of transport, the distance to the dentist and getting an appointment. Difficulties with transport were the most common, being mentioned by almost half (48%) of those with problems. The distance to the dentist was said to be a problem by 37%, and the difficulty of getting an appointment said to be a problem by 36%. Other problems mentioned by fewer numbers of people were the time involved in paying a visit to the dentist (sometimes requiring a whole day to be spent in the nearest town), the cost of an extensive journey, and the restricted local dental service where, for example, the dentist only came to the area once a month.

Not all of the Highlands and Islands is isolated, of course, and we would not expect people in Inverness Burgh, say, to have any more problems in getting to the dentist than people in, say, Glasgow. We therefore looked at the problems of getting to the dentist on an area by area basis. In many areas, especially the towns, virtually no people said they had any problems but there were several areas which appeared to be in a particularly unfavourable position: three quarters of the people in the Mainland of Shetland away from Lerwick Burgh said they had problems in getting to the dentist, and half of the people living on the west coast of Ross and Cromarty and on the west coast of Inverness county said they had problems.

Getting to the dentist might be thought to be less of a problem for the edentulous, who go fairly infrequently to the dentist compared to those who still have some natural teeth, but there proved to be no appreciable difference: 19% of the edentulous in the Highlands and Islands said they had problems compared to 21% of those who still had some natural teeth.

During the interview we asked people (except those who said they have never been to a dentist and those edentulous people whose last visit was more than 10 years prior to the survey) whether, the next time they went to the dentist, they intended to go to the same one as previously. Overall, just over three quarters (76%) said they would go to the same one, this proportion being 72% in the Highlands and Islands and 76% in the Main part of Scotland. Of the people who did intend to go to the same dentist we asked some questions about this, their "usual", dentist. We compare the results for the two parts of Scotland for the questions about the distance to the dental surgery and the time it took the informant to get to the dentist. The distance to the dentist was greater in the Highlands and Islands: 14% of people living in the Highlands and Islands said that the dental surgery was 20 miles or more away, compared to only 2% in the Main part of Scotland. In fact in the Highlands and Islands there were, as we might expect, a small proportion of people for whom a visit to the dentist would involve a very long journey: 2% of people in the Highlands and Islands said that their dentist was 100 miles or more away. The time taken to get to the dentist varied in a similar way: in the Highlands and Islands 11% of the people said that it would take an hour or more compared to only 3% in the Main part of Scotland.

There were no differences between the two parts of Scotland in the proportions of regular, occasional and irregular attenders. In addition, the regular dental attenders in the Highlands and Islands appeared to go to the dentist as often as the regular attenders in the Main part of Scotland: in the Highlands and Islands 97% of the regular attenders said their last visit to the dentist was in the year prior to the survey, compared with 96% in the Main part of Scotland.

If problems in getting to the dentist have an unfavourable effect on the dental health of the people concerned, then since only a small proportion of people in the Highlands and Islands have such problems, we should expect dental health in the Highlands and Islands to be at most only marginally worse than in the Main part of Scotland. We shall see in Section 11.2 that in most respects the dental health of people living in the Highlands and Islands is the same as the dental health of people in the Main part of Scotland; those few aspects where people in the Highlands and Islands are slightly worse off are more likely due to the fact that people in the Highlands and Islands are somewhat older, on average, than people in the Main part of Scotland.

11.2 Dental Health in the Two Parts of Scotland

In terms of total tooth loss, the Highlands and Islands seemed to be somewhat worse off than the Main part of Scotland: the proportions edentulous at the time of the survey were 50% and 43% respectively. We were interested to see if there was anything which could explain this higher proportion of edentulous people in the Highlands and Islands, and we firstly looked at the proportion edentulous age for age in the two parts of Scotland. Table 11.1 shows that the proportion edentulous was virtually the same age for age. The overall higher proportion of edentulous people in the Highlands and Islands is due to the fact that the two parts of Scotland have somewhat different age distributions, the Highlands and Islands having proportionately fewer young people and more old people. For instance in the Highlands and Islands only 11% (ie $\frac{61}{534}$) of the people are in the age group

16-24, whereas in the Main part of Scotland 19% (ie $\frac{404}{2183}$) are aged 16-24. Conversely in the Highlands and Islands 21% (ie $\frac{112}{534}$) of the people are aged 65 and over, this proportion being only 15% (ie $\frac{338}{2183}$) in the Main part of Scotland.

Table 11.1
TOTAL TOOTH LOSS BY AGE IN THE TWO PARTS OF SCOTLAND

Present age	Proportion edentulous		
	Highlands and Islands	Main part of Scotland	Scotland (re-weighted)
16 - 24	5% (61)	2% (404)	2% (416)
25 - 34	16% (95)	13% (355)	13% (374)
35 - 44	33% (93)	35% (386)	35% (405)
45 - 54	59% (85)	54% (377)	54% (394)
55 - 64	80% (88)	78% (321)	78% (339)
65 - 74	87% (69)	87% (252)	87% (265)
75 and over	84% (43)	91% (86)	89% (95)
All ages	50% (534)	43% (2183*)	44% (2290*)

Base numbers are given in brackets.

*includes two for whom age was unknown.

Using the base numbers given in the table we can calculate what the expected prevalence of total tooth loss would be in the Highlands and Islands if the age distribution was the same as in the Main part of Scotland. Calculated in this way the expected proportion edentulous in the Highlands and Islands becomes 44%, that is virtually the same as in the Main part of Scotland. This demonstrates the importance of always bearing in mind the differing age distributions when comparing the two parts of Scotland.

We looked to see how the proportion edentulous (which was 50% overall in the Highlands and Islands) varied for different parts of the Highlands and Islands. The variation was quite large, some areas having almost three-quarters edentulous compared to only one third in other areas. Age was obviously an important factor here, in that in general those areas in the Highlands and Islands which had exceptionally high proportions of edentulous people also had high proportions of old people and low proportions of young people. There did not, however, appear to be any association between the relative isolation of an area and the proportion edentulous in that area. Thus although the geographical location no doubt affects the extent to which getting to the dentist is a problem, it does not appear to affect the dental health in terms of total tooth loss, differences in age distribution being the much more important factor here.

Table 11.2 gives the proportion edentulous in each of the social classes, and we see that there is an unexpected result for social class II: in the Highlands and Islands people in this social class are not in the favourable position that we might expect, in that 54% of them have lost all their natural teeth compared to only 33% in the Main part of Scotland. This figure of 54% is in fact almost as high as the level of total tooth loss in the lowest social class group found throughout Scotland.

Table 11.2

TOTAL TOOTH LOSS AND HOUSEHOLD SOCIAL CLASS IN THE TWO PARTS OF SCOTLAND

Household social class	Proportion edentulous		
	Highlands and Islands	Main part of Scotland	Scotland (re-weighted)
Social class I			
Social class II	48% { # (15) 54% (139)	32% { 10% (82) 33% (288)	33% { 10% (85) 35% (316)
Social class III non-manual	35% (34)	40% (207)	40% (214)
Social class III manual	40% (153)	41% (838)	41% (869)
Social class IV non-manual	60% (20)	52% (92)	52% (96)
Social class IV manual	58% { 57% (88) 59% (35)	53% { 52% (302) 55% (179)	53% { 52% (319) 55% (187)
Social class V			
Housewife	57% (45)	62% (152)	62% (161)
Others*	# (5)	37% (43)	38% (44)
All social classes	50% (534)	43% (2183)	44% (2290)

Base numbers are given in brackets.

#Base number too small to give percentage.

*Students, unemployed and not classifiable.

Once again the anomaly is explained by a difference in age distribution. In the Highlands and Islands those people in social class II were considerably older than the equivalent group of people in the Main part of Scotland (in the Highlands and Islands 43% of people in social class II were aged 55 or over compared to 30% in the Main part of Scotland). Groups of people who contributed strongly to the high proportion of old people in social class II were retired teachers, retired nurses and retired managers, all of whom were aged 55 or over and virtually all of whom were edentulous. If we compare people in social class II in the two parts of Scotland on an age by age basis, the proportion edentulous in each age group is very similar in the two parts of Scotland. So once again it is the difference in age distribution which accounts for the unexpectedly high proportion edentulous in social class II in the Highlands and Islands.

Total tooth loss before the age of thirty was the same in the two parts of Scotland (Table 11.3), and the slight improvement over the years in total tooth loss before this age seems to have occurred in both areas.

Table 11.3

TOTAL TOOTH LOSS BEFORE THE AGE OF THIRTY
IN THE TWO PARTS OF SCOTLAND

Present age	Proportion edentulous before thirty		
	Highlands and Islands	Main part of Scotland	Scotland (re-weighted)
55 - 64	22% (88)	20% (321)	20% (339)
45 - 54	21% (85)	16% (377)	16% (394)
35 - 44	22% (93)	15% (386)	15% (405)
30 - 34	15% (47)	15% (160)	15% (169)

Base numbers are given in brackets.

In terms of dentures, the proportion of edentulous people who had been fitted with full upper and full lower dentures was the same in the Highlands and Islands as it was in the Main part of Scotland (97% in each area). In addition, the proportion of edentulous people who wore both their dentures all day was the same in the two parts of Scotland (82% in each area).

We next investigate whether the dental health of those who still have some natural teeth is the same in the two parts of Scotland. Table 11.4 summarises the condition of the natural teeth in terms of the average numbers of teeth in the different conditions.

Table 11.4
AVERAGE NUMBERS OF TEETH IN THE DIFFERENT CONDITIONS
IN THE TWO PARTS OF SCOTLAND

Average numbers of teeth which were:	Adults with some natural teeth		
	Highlands and Islands	Main part of Scotland	Scotland (re-weighted)
Missing	12.1	10.8	10.8
Present (at risk)	19.9	21.2	21.2
	32.0	32.0	32.0
Decayed	2.6	2.4	2.4
Filled, otherwise sound	6.3	6.5	6.5
Sound and untreated	11.0	12.3	12.3
(Teeth at risk)	19.9	21.2	21.2
BASES	243	1121	1170

People living in the Highlands and Islands were fairly similar to those in the Main part of Scotland in terms of the average numbers of teeth in the different conditions, although they did have on average slightly more missing teeth and slightly fewer sound and untreated teeth. This difference in the level of tooth loss among those who still have some natural teeth is once again explained by the age difference between the two parts of Scotland. Age for age, the numbers of missing teeth are the same in the two parts of Scotland.

In the Highlands and Islands; as in the Main part of Scotland, women had on average nearly one more missing tooth, 2 more teeth that were filled, otherwise sound, and 2 fewer teeth which were sound and untreated than was the case among men (Table 11.5).

We looked at the results for the different social classes, and found that in the Highlands and Islands, as in the Main part of Scotland, the higher social classes had fewer missing teeth, fewer decayed teeth, more filled, otherwise sound teeth and fewer sound and untreated teeth. Although we saw earlier that there was an unexpectedly high level of total tooth loss among people of social class II in the Highlands and Islands, this difference would appear to be confined solely to total tooth loss: people in social class II in the Highlands and Islands who still had some natural teeth were the same as the equivalent group of people in the Main part of Scotland in terms of the numbers of teeth in the various conditions.

Table 11.5

AVERAGE NUMBERS OF TEETH IN THE DIFFERENT CONDITIONS,
FOR DIFFERENT SEXES, IN THE TWO PARTS OF SCOTLAND

Average numbers of teeth which were:	Adults with some natural teeth					
	Highlands and Islands		Main part of Scotland		Scotland (re-weighted)	
	M	F	M	F	M	F
	Missing	Present (at risk)	Missing	Present (at risk)	Missing	Present (at risk)
	11.8	12.5	10.4	11.2	10.4	11.2
	20.2	19.5	21.6	20.8	21.6	20.8
	32.0	32.0	32.0	32.0	32.0	32.0
	3.3	1.9	2.7	2.0	2.8	2.0
	5.1	7.4	5.6	7.4	5.6	7.5
	11.8	10.2	13.3	11.4	13.2	11.3
	20.2	19.5	21.6	20.8	21.6	20.8
	BASES	120 123	577 544	601 569		

The level of oral hygiene and gum conditions in the two parts of Scotland was also similar. To illustrate this we give in Table 11.6 the overall average oral hygiene scores and periodontal scores. The overall average debris score was 0.73 in the Highlands and Islands and 0.62 in the Main part of Scotland, the figures for calculus being 0.62 and 0.59 respectively. The extent of periodontal involvement was similar in the two areas, the overall average score being 1.20 in the Highlands and Islands and 1.08 in the Main part of Scotland.

Table 11.6

ORAL HYGIENE AND PERIODONTAL SCORES IN THE TWO PARTS OF SCOTLAND

	Adults with some natural teeth		
	Highlands and Islands	Main part of Scotland	Scotland (re-weighted)
	Debris score*	Calculus score*	Periodontal score*
	0.73	0.62	0.62
	0.62	0.59	0.59
	1.20	1.08	1.08
BASES	243	1121	1170

*Average score, per person per tooth at risk.

Among those with some natural teeth, the proportion who had been fitted with a denture to complement their natural teeth (and conversely the proportion who relied wholly on natural teeth) was similar in the two parts of Scotland. The pattern of dentures provided was similar, as was the extent to which the dentures were worn by informants.

We therefore found very few aspects on which the Highlands and Islands differed from the Main part of Scotland, and these differences were explained by variations in age structure. Although, undoubtedly, isolation in the Highlands and Islands makes the provision of a dental service very difficult in some areas, much of the population in the Highlands and Islands is in fact gathered in townships. The survey has shown that the proportion of people who had difficulties in getting to the dentist in the Highlands and Islands was very small compared to the whole population of Scotland, or indeed to the whole population of the Highlands and Islands. In fact the number of people who lived in isolated areas was too small to make detailed comparisons between their dental health and that of other people. Any assessment of their particular problems (intense in themselves but only experienced by a small number of people) would need to be made in very localised studies.

It is comparatively easy to imagine that the physical difficulties of transport and distance might affect the level of dental treatment obtained, while ignoring the fact that disinclination (or lack of dental awareness) may be an equally difficult barrier to the provision of dental treatment, a factor which can occur whatever the proximity to dental services. The fact that the dental health of adults in the Highlands and Islands was similar to that of the rest of Scotland, suggests that personal attitudes and behaviour play a similar overwhelming role in both areas.

12 Preferences for Dental Treatment

12.1 Preferences for the Treatment of Natural Teeth

We asked all those people who still had some natural teeth whether, if they had an aching tooth, they would prefer the tooth to be extracted or filled. This was asked separately for back teeth and front teeth. The overall preferences for the two kinds of treatment are given in Table 12.1.

Table 12.1
PREFERENCE FOR EXTRACTIONS VERSUS FILLINGS
FOR ADULTS WITH SOME NATURAL TEETH

Preference for extractions versus fillings if a tooth was aching	Adults with some natural teeth	
	Back tooth	Front tooth
	%	%
Have it out	48	27
Have it filled	51	72
Other answer	1	1
	100	100
BASE	1170	

Base number re-weighted.

For the aching back tooth slightly more people said that they would prefer it to be filled (51%) than said they would prefer it to be extracted (48%). A small proportion of people (1%) gave some other qualified answer, for example, that it would depend on the state of the tooth or that they would let the dentist decide. Thus conservation of an aching back tooth did not seem important for a great many people, almost half saying that they would prefer extraction. For the aching front tooth the situation was quite different, and appearance seemed to play an important part; almost three quarters (72%) said that they would prefer the tooth to be filled. Nevertheless over a quarter (27%) said they would prefer extraction. As with the aching back tooth 1% of people gave some other qualified answer.

In previous chapters we have found that dental attitudes and dental health vary for different groups of people, and we next investigate how the preferences for extractions versus fillings vary for people of different ages, sexes, social classes and dental attendance patterns.

Age did not seem to have any bearing on whether a person preferred an aching tooth to be extracted (Table 12.2), and this was so both for the aching back tooth and the aching front tooth. It is unfortunate that attitudes towards conservative

dental treatment at the present time are such that even among the youngest adults (16-24) almost half (49%) said they would prefer an aching back tooth to be extracted and almost a quarter (24%) said that they would prefer an aching front tooth to be extracted.

Table 12.2
PREFERENCE FOR EXTRACTIONS VERSUS FILLINGS, FOR ADULTS OF DIFFERENT AGES

Preference for extractions versus fillings if a back tooth was aching	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
Have it out	49	48	47	41	51	48
Have it filled	49	52	52	58	46	51
Other answer	<u>2</u>	<u>-</u>	<u>1</u>	<u>1</u>	<u>3</u>	<u>1</u>
	100	100	100	100	100	100
Preference for extractions versus fillings if a front tooth was aching	%	%	%	%	%	%
Have it out	24	27	29	27	35	27
Have it filled	76	73	69	72	64	72
Other answer	<u>-</u>	<u>-</u>	<u>2</u>	<u>1</u>	<u>1</u>	<u>1</u>
	100	100	100	100	100	100
BASES	382	297	234	152	105	1170

Base numbers re-weighted.

We have seen earlier that more women go to the dentist for a regular check-up and that women have more evidence of restorative treatment than men. We might therefore expect the preferences for treatment to differ for men and women, but Table 12.3 shows that it is only in terms of an aching front tooth that the sexes differed significantly. Almost a third (31%) of men said they would prefer an aching front tooth to be extracted compared to 22% of women. Appearance would appear to play a particularly important part for the women.

Table 12.4 gives the preferences for extractions versus fillings for the three main social class groups, and we see that the differences between the different social classes were substantial. In the top social class group (I, II and III non-manual) comparatively few people said they would prefer extraction of the aching tooth, even an aching back tooth (the proportions preferring extraction were 27% and 13% for back and front respectively). This contrasts with people in the lowest social class group (IV and V), among whom 61% said they would prefer extraction of the aching back tooth and 41% said they would prefer extraction of the aching front tooth. People in the intermediate social class group (III manual) were somewhat more like people in the lowest social class group in terms of their preferences, especially where the back tooth was concerned.

Table 12.3
PREFERENCE FOR EXTRACTIONS VERSUS FILLINGS
FOR DIFFERENT SEXES

Preference for extractions versus fillings if a back tooth was aching.	Adults with some natural teeth		
	Male	Female	All
	%	%	%
Have it out	50	45	48
Have it filled	48	54	51
Other answer	<u>2</u>	<u>1</u>	<u>1</u>
	100	100	100
Preference for extractions versus fillings if a front tooth was aching.			
	%	%	%
Have it out	31	22	27
Have it filled	67	77	72
Other answer	<u>2</u>	<u>1</u>	<u>1</u>
	100	100	100
BASES	601	569	1170

Base numbers re-weighted.

Table 12.4
PREFERENCE FOR EXTRACTIONS VERSUS FILLINGS, FOR DIFFERENT SOCIAL CLASSES

Preference for extractions versus fillings if a back tooth was aching.	Adults with some natural teeth			
	Household social class			All* social classes
	I, II and III non-manual	III manual	IV non-manual, IV manual & V	
	%	%	%	%
Have it out	27	57	61	48
Have it filled	71	42	37	51
Other answer	<u>2</u>	<u>1</u>	<u>2</u>	<u>1</u>
	100	100	100	100
Preference for extractions versus fillings if a front tooth was aching.				
	%	%	%	%
Have it out	13	31	41	27
Have it filled	86	68	59	72
Other answer	<u>1</u>	<u>1</u>	<u>-</u>	<u>1</u>
	100	100	100	100
BASES	367	470	255	1170

Base numbers re-weighted.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

As we would expect, the preferences for adults with different dental attendance patterns were quite different (Table 12.5). Among those who attended for a regular check-up only 18% said they would prefer an aching back tooth to be extracted, and only 7% said they would prefer an aching front tooth to be extracted. Thus the preference for restorative treatment of the front tooth was almost universal among the regular attenders, 92% saying they would prefer the aching front tooth to be

filled. The situation for the irregular attenders was quite different, 69% saying they would prefer the aching back tooth to be taken out and 41% saying they would prefer an aching front tooth to be taken out.

Table 12.5
PREFERENCE FOR EXTRACTIONS VERSUS FILLINGS, FOR DIFFERENT ATTENDANCE PATTERNS

Preference for extractions versus fillings if a back tooth was aching.	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when have trouble	All
	%	%	%	%
Have it out	18	38	69	48
Have it filled	80	60	30	51
Other answer	<u>2</u>	<u>2</u>	<u>1</u>	<u>1</u>
	100	100	100	100
Preference for extractions versus fillings if a front tooth was aching.	%	%	%	%
Have it out	7	21	41	27
Have it filled	92	77	58	72
Other answer	<u>1</u>	<u>2</u>	<u>1</u>	<u>1</u>
	100	100	100	100
BASES	389	157	623	1170*

Base numbers re-weighted.

*Includes one person who had never been to a dentist.

Having already seen that social class and dental attendance pattern are both important in terms of whether extractions or fillings are preferred for aching teeth, it is of value to look at the situation for different social classes and attendance patterns to see if they are acting independently and, if so, which seems to be the more important. If they are indeed acting independently then we would expect the least preference for extractions (and conversely the greatest preference for fillings) among the regular attenders of the top social class group, and the greatest preference for extractions of aching teeth among the irregular attenders of the lowest social class group. This is in fact the case, as is shown in Table 12.6 (so that the table should not be unmanageable, we have summarised the preferences in terms of the proportion who would prefer extraction).

For an aching back tooth the proportion who said they would prefer the tooth to be extracted ranged for 14% among the regular attenders of the top social class group to 74% among the irregular attenders of the lowest social class group. Attendance pattern had a somewhat greater effect than social class, the range for the different attendance patterns being 18% to 38%, and the range for the different social classes being 27% to 57% to 61%.

Similarly there was a large difference in the proportion who said they would prefer an aching front tooth to be extracted; only 4% of the regular attenders of the top social class group said they would prefer extraction, compared to 49% of the irregular attenders of the lowest social class group. Again dental attendance seemed to have somewhat more effect than social class, in that only 7% of people with the most favourable attendance pattern (ie the regular attenders) said they would prefer extraction for the aching front tooth compared to 13% of people in the top social class group.

Table 12.6
PREFERENCE FOR EXTRACTIONS VERSUS FILLINGS,
BY ATTENDANCE PATTERN AND SOCIAL CLASS

Aching back tooth	Adults with some natural teeth			
	Proportion who would prefer an aching tooth to be extracted			
	Regular check-up	Occasional check-up	Only when have trouble	All
S.C. I, II, III non-manual	14%	26%	49%	27%
S.C. III manual	26%	36%	75%	57%
S.C. IV and V	16%	63%	74%	61%
All*	18%	38%	69%	48%
Aching front tooth				
S.C. I, II, III non-manual	4%	14%	26%	13%
S.C. III manual	9%	17%	43%	31%
S.C. IV and V	12%	39%	49%	41%
All*	7%	21%	41%	27%
BASE NUMBERS				
S.C. I, II, III non-manual	188	52	127	367
S.C. III manual	123	61	286	470
S.C. IV and V	50	31	174	255
All*	389	157	623	1170 **

Base numbers re-weighted.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

**Includes one person who had never been to a dentist.

Although there were some regular attenders who said they would prefer an extraction, and conversely some irregular attenders who said they would prefer a filling (especially in the case of an aching front tooth), it is obvious that the overall preferences of the regular dental attenders are destined to preserve them as being dentate adults, while the preferences of the irregular attenders can do nothing but hasten the event of total tooth loss.

It is difficult to assess the extent to which these preferences would actually affect the decision for the treatment of an aching tooth, or even whether having an aching tooth is a situation with which the person was familiar. We would expect, however, that the stated preferences would have some bearing on the dental treatment which the person was in the habit of receiving, and we investigate this in two ways; firstly we look at the dental condition of the mouth (which is of course the result of all past dental disease and treatment) and secondly we look at what treatment the person received when he or she last visited the dentist.

Since we have already seen that the preference for extraction versus restorative treatment varied according to dental attendance pattern, and that the dental condition itself varied according to dental attendance pattern, we look at the relationship between the dental condition and the preferred treatment, separately according to whether the person goes to the dentist for a regular check-up or only when he has trouble. In addition, since the preferences vary in a similar way, whether we are considering treatment for back teeth or treatment for front teeth, we confine our analysis to the dental condition according to back tooth preference.

Table 12.7 gives the numbers of missing teeth according to dental attendance pattern and the preference for the treatment of an aching back tooth, and we see that those people who said they would prefer the tooth to be extracted had more missing teeth than those who said they would prefer restorative treatment, this being equally so for the regular and the irregular attenders. For example the regular attenders who said they would prefer an extraction had, on average, 9.8 missing teeth, and one third (33%) of them had 12 or more missing teeth; the corresponding figures for the regular attenders who said they would prefer the tooth to be filled were 8.1 and 19% respectively. Among the irregular attenders the overall tooth loss was, of course, greater than among the regular attenders, but those irregular attenders who said they would prefer extraction were in a worse position than those who said they would prefer restorative treatment; for example those preferring extraction had 13.0 missing teeth on average, and only 15% had 5 or fewer missing teeth, the figures for those preferring fillings being 11.2 and 28% respectively.

Table 12.7
THE NUMBER OF MISSING TEETH, BY DENTAL ATTENDANCE
AND PREFERENCE FOR BACK TOOTH TREATMENT

Number of missing teeth	Adults with some natural teeth			
	Regular check-up		Only when having trouble	
	Have aching back tooth out	Have aching back tooth filled	Have aching back tooth out	Have aching back tooth filled
	%	%	%	%
0	-	2	-	-
1-5	25	34	15	28
6-11	42	45	37	29
12-17	23	12	21	23
18 or more	<u>10</u>	<u>7</u>	<u>27</u>	<u>20</u>
	100	100	100	100
Average number of missing teeth	9.8	8.1	13.0	11.2
BASES	69	313	428	189

Base numbers re-weighted.

The differences in the number of filled, otherwise sound teeth were considerable (Table 12.8) and again the association existed for the regular attenders and the irregular attenders. Only 1% of the regular attenders who said they would prefer an aching back tooth to be extracted had 18 or more filled teeth, compared to 15% of the regular attenders who said they would prefer the tooth to be filled. The average numbers of filled teeth were 7.7 and 12.1 respectively. Among the irregular attenders (who did, of course, have much less evidence of restorative treatment than the regular attenders) a half (50%) of those who said they would prefer extraction of the aching back tooth had no filled teeth, compared to only 19% of the irregular attenders who said they would prefer restorative treatment. The average numbers of filled teeth for these two groups of irregular attenders were 2.3 and 5.3 respectively.

Table 12.8

THE NUMBER OF FILLED, OTHERWISE SOUND TEETH, BY DENTAL
ATTENDANCE AND PREFERENCE FOR BACK TOOTH TREATMENT

Number of filled# teeth	Adults with some natural teeth			
	Regular check-up		Only when having trouble	
	Having aching back tooth out	Have aching back tooth filled	Have aching back tooth out	Have aching back tooth filled
	%	%	%	%
0	9	*	50	19
1-5	22	9	24	40
6-11	48	37	13	29
12-17	20	39	3	11
18 or more	<u>1</u>	<u>15</u>	<u>—</u>	<u>1</u>
	100	100	100	100
Average number of filled# teeth	7.7	12.1	2.3	5.3
BASES	69	313	428	189

Base numbers re-weighted.

#Filled, otherwise sound.

*Less than 0.5%.

It is difficult to tell how much of the relationships which we have found in Tables 12.7 and 12.8 are direct ones, because in many cases teeth will not be aching when the person goes to the dentist. But similar attitudes may well exist towards teeth which have less severe decay, and it is these attitudes which play a contributory role each time the person visits the dentist. In this respect it is of interest to look at the treatment the person received in the last course of treatment, and the results are given in Table 12.9.

Table 12.9

MAJOR TYPE OF TREATMENT RECEIVED AT LAST VISIT, BY
PREFERENCE FOR BACK TOOTH TREATMENT

Treatment received in the last course of treatment	Adults with some natural teeth	
	Have aching back tooth filled	Have aching back tooth out
	%	%
No fillings, no extractions	23	15
Some fillings, no extractions	52	14
Some fillings, some extractions	11	18
No fillings, some extractions.	<u>14</u>	<u>53</u>
	100	100
BASES	598	556

Base numbers re-weighted.

There was a high association between the treatment preferred for an aching tooth and the treatment received, and we consider firstly those people who favoured restorative treatment. Among those who said they would prefer an aching back tooth filled, over half (52%) had only conservative treatment at the last visit. One quarter (25%) had some extractions (with or without conservation treatment as well). The situation for those who preferred extraction of an aching back tooth

was quite different. Over half (53%) of those who preferred the back tooth to be taken out had only extractions at the last visit, and almost three quarters (71%) had some extractions. Only 14% had restorative treatment and no extractions.

12.2 Attitudes Towards Having Dentures

In this section we take the question of preferences for dental treatment one step further and look at peoples' attitudes towards having dentures. We asked all adults who still relied wholly on natural teeth whether, if they were to lose all their back teeth, they would prefer to manage without dentures, to have dentures just to replace the back teeth, or to have the rest of their natural teeth taken out and have full dentures; and we asked all dentate adults whether they found the thought of having full dentures very upsetting, a little upsetting or not at all upsetting.

Just over a quarter (26%) of those who relied wholly on natural teeth said that they would prefer to manage without dentures if they lost all their back teeth, over half (56%) said they would prefer dentures just for the back, and almost one fifth (18%) said they would prefer to have the rest of their natural teeth extracted and have full dentures fitted. These proportions varied considerably with dental attendance pattern (Table 12.10) and, as we might expect, it was the regular attenders who showed the greatest desire to prolong the life of their natural teeth. Almost two thirds of them (66%) said they would prefer to have dentures for the back teeth and only 8% said they would prefer to have full clearance. Although these proportions are markedly different from those of the irregular attenders (45% and 26% respectively), nevertheless the acceptability of full dentures was quite prominent among those people with the most favourable attendance pattern, almost one in ten expressing preference for full dentures. It is interesting that the expressed preference for continuing without dentures is evident both for the regular and irregular attenders (26% and 29% respectively).

Table 12.10
ATTITUDES TO HAVING DENTURES IN CONJUNCTION WITH NATURAL TEETH,
BY DENTAL ATTENDANCE PATTERN

Attitude to having dentures if all back teeth were lost	Adults who rely wholly on natural teeth			
	Regular check-up	Occasional check-up	Only when have trouble	All
	%	%	%	%
Manage without dentures	26	18	29	26
Have denture for the back only	66	68	45	56
Have all natural teeth out and have full dentures	8	14	26	18
	100	100	100	100
BASES	279	103	378	760

Base numbers re-weighted.

We also looked at the expressed preferences for adults of different ages (Table 12.11). There was a steady increase with age in the proportion who said they would prefer to manage without dentures, from 20% among those aged 16-24 to 42% among those aged 55 and over. The proportion who said they would prefer to

have dentures just for back teeth decreased with age, from 67% among those aged 16-24 to 31% among the oldest age group (55 and over). Full dentures appeared to be more acceptable among older adults than among younger, the proportion who said they would prefer full clearance if they lost all their back teeth increasing from 13% among those aged 16-24 to 27% among those aged 55 and over. We cannot tell from the data how much of these differences are due to ageing, which will eventually affect the younger adults, and how much is due to a real change in attitudes towards the acceptability of dentures among the younger generations, but it would appear that partial tooth loss among older adults is more readily met by no replacement at all or by full clearance.

Table 12.11
ATTITUDES TO HAVING DENTURES IN CONJUNCTION WITH NATURAL TEETH, BY AGE

Attitude to having dentures if all back teeth were lost	Adults who rely wholly on natural teeth					
	Present age					All
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
Manage without dentures	20	28	31	36	42	26
Have denture for the back only	67	52	48	38	31	56
Have all natural teeth out and have full dentures	<u>13</u>	<u>20</u>	<u>21</u>	<u>26</u>	<u>27</u>	<u>18</u>
	100	100	100	100	100	100
BASES	332	205	126	62	34	760

Base numbers re-weighted.

Dentate adults were fairly evenly split according to how they viewed the thought of eventually having full dentures: 30% said they found the thought very upsetting, 32% said they found it a little upsetting and 38% said they found the thought not at all upsetting. As we might expect, there were considerable differences according to dental attendance pattern (Table 12.12), and it was the irregular attenders who had markedly different views on the subject. Almost half (46%) of those dentate adults who only went to the dentist when they were having trouble said they found the thought of having full dentures not at all upsetting, compared to 28% of the regular attenders. Conversely 26% of the irregular attenders found the thought very upsetting compared to 34% of the regular attenders. Thus despite the more ready acceptance of full dentures among those with the least favourable dental attendance pattern, even among the regular attenders a quarter did not find the thought of full dentures at all upsetting.

We looked at how people found the thought of having full dentures, for different age groups. More of the youngest adults found the thought very upsetting (35%) compared to the oldest adults (23% of those aged 55 and over found the thought of full dentures very upsetting). Conversely the proportions who found the thought not at all upsetting were 30% and 50% respectively. Those dentate adults who had no previous denture experience tended to find the thought of having full dentures somewhat more upsetting than those who already had been provided with dentures to complement their natural teeth: a third (33%) of those wholly reliant on natural teeth found the thought of full dentures very upsetting compared to a quarter (25%) of the partially-dentured. Conversely the proportions finding the thought of full dentures not at all upsetting were 35% and 43% respectively.

Table 12.12

ATTITUDES TO FULL DENTURES, BY DENTAL ATTENDANCE PATTERN

Finds the thought of having full dentures:	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when have trouble	All
	%	%	%	%
Very upsetting	34	36	26	30
A little upsetting	38	35	28	32
Not at all upsetting	<u>28</u>	<u>29</u>	<u>46</u>	<u>38</u>
	100	100	100	100
BASES	389	157	623	1170*

Base numbers re-weighted.

*Includes one person who had never been to a dentist.

Clearly the large numbers of people who would prefer the extraction of an aching tooth, and the large numbers who readily accept total tooth loss and full dentures, indicate that much needs to be done to change peoples' attitudes if reliance on natural teeth is to be given a higher priority than at the present time. Furthermore what needs to be done is not merely a matter of encouraging people to go to the dentist regularly, for we have seen in this chapter that even among the regular attenders there are some people whose expressed preferences for treatment and attitudes on dentures are unfavourable in terms of the retention of the natural teeth.

13 Cleaning Natural Teeth

During the interview we asked all people who still had some natural teeth a series of questions about cleaning them, and in this chapter we look at the frequency with which people cleaned them, whether they used a wrist action, a scrubbing action or both, and whether a dentist had ever demonstrated to them how best to clean their teeth.

13.1 The Frequency of Tooth Cleaning, by Attendance Pattern, Age, Sex and Social Class

People varied greatly in the frequency with which they said they cleaned their natural teeth. There was a small proportion (2%) whose interest in their oral hygiene was obviously very low, since they said they never cleaned their natural teeth at all; 16% said they cleaned their teeth less than once a day, 30% said they cleaned them once a day, 41% said they cleaned them twice a day and 11% said they cleaned them three or more times a day. The variation in frequency of cleaning for the different dental attendance patterns was quite considerable (Table 13.1). Among the regular dental attenders only 4% cleaned their teeth less than once a day, and just over one fifth (21%) said they cleaned them three or more times a day. The irregular attenders showed much less frequent tooth cleaning; 3% said they never cleaned their teeth, 25% said they cleaned them less than once a day, and only 5% said they cleaned them three or more times a day. The occasional attenders cleaned their teeth more often than the irregular attenders but not as often as those who went to the dentist for a regular check-up.

Table 13.1

FREQUENCY OF TOOTH CLEANING, BY DENTAL ATTENDANCE PATTERN

Frequency of cleaning natural teeth	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when having trouble	All
	%	%	%	%
Never	-	*	3	2
Less than daily	4	11	25	16
Once daily	25	31	33	30
Twice daily	50	48	34	41
Three or more times daily	21	10	5	11
	100	100	100	100
BASES	389	157	623	1170 [#]

Base numbers re-weighted.

*Less than 0.5%.

[#]Includes one person who had never been to a dentist.

Men and women had somewhat different frequencies of tooth cleaning, men cleaning their teeth less often on average than women. Among men who still had some natural teeth 3% said they never cleaned their teeth and 25% said they cleaned them less than once a day, these proportions for women being 1% and 7% respectively. The proportions who cleaned their teeth three or more times a day were 6% and 16% for men and women respectively. It is interesting to speculate on the reasons for the apparent contradiction between the higher frequency of tooth cleaning among women and the higher level of total tooth loss among women (Chapter 4). We shall see in Section 13.3 that there is only a slight relation between tooth cleaning and dental disease, and in any case Chapter 10 has shown that factors other than disease are responsible for a considerable proportion of tooth loss.

Table 13.2 gives the results for different attendance patterns and sexes. As we would expect, the female regular attenders had the highest frequency of tooth cleaning and male irregular attenders the lowest. Just over a quarter (26%) of the women who attended the dentist for a regular check-up said they cleaned their teeth three or more times a day, compared to only 3% of men who attended only when they had trouble. Conversely only 3% of the female regular attenders cleaned their teeth less than daily, whereas among the men who attended only when they had trouble, over a third (34%) cleaned their teeth less than daily and 4% said they never cleaned them.

Table 13.2

FREQUENCY OF TOOTH CLEANING, BY DENTAL ATTENDANCE PATTERN AND SEX

Frequency of cleaning natural teeth	Adults with some natural teeth							
	Regular check-up		Occasional check-up		Only when having trouble		All	
	M	F	M	F	M	F	M	F
	%	%	%	%	%	%	%	%
Never	-	-	2	-	4	1	3	1
Less than daily	7	3	19	4	34	13	25	7
Once daily	37	16	41	22	33	33	35	25
Twice daily	43	55	31	61	26	45	31	51
Three or more times daily	13	26	7	13	3	8	6	16
	100	100	100	100	100	100	100	100
BASES	165	225	71	87	365	257	601	569*

Base numbers re-weighted.

*Includes one person who had never been to a dentist.

We looked at the frequency of tooth cleaning for the different social classes, and found that those people in the top social class group cleaned their teeth more often than people in the other two social class groups (Table 13.3). There was no difference between the intermediate social class group (III manual) and the lowest social class group (IV and V) in the overall pattern of tooth cleaning. Only 7% of people in the top social class group cleaned their natural teeth less than daily compared to 21% and 23% in the other two social class groups; conversely the proportions who cleaned their teeth three or more times a day were 17%, 8% and 6% respectively.

We also looked at the frequency of tooth cleaning for people of different ages, and the only difference was that more people in the oldest age group (55 and over) said they never cleaned their teeth (8% compared to 1% among those aged 16-34 and 2% among those aged 35-54).

Table 13.3
FREQUENCY OF TOOTH CLEANING, BY HOUSEHOLD SOCIAL CLASS

Frequency of cleaning natural teeth	Adults with some natural teeth			
	Household social class			All* social classes
	I, II and III non-manual	III manual	IV non-manual, IV manual and V	
	%	%	%	%
Never	1	2	3	2
Less than daily	7	21	23	16
Once daily	25	33	31	30
Twice daily	50	36	37	41
Three or more times daily	17	8	6	11
	100	100	100	100
BASES	367	470	255	1170

Base numbers re-weighted.

*Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

13.2 The Method of Tooth Cleaning

There has been much discussion about the ways in which the natural teeth are cleaned, and one distinction that has been made by some dentists is that a method which uses only a wrist action rather than a scrubbing action is more efficient in terms of dislodging soft debris and in terms of stimulating the gums. In order to establish which particular method the informant used, we asked each informant who had said he did clean his natural teeth, to pretend he had a toothbrush in his hand and to demonstrate how he used it. The interviewer made an observation on whether the action involved a wrist movement only, a scrubbing action only, or both wrist movement and a scrubbing action only.

A method of cleaning which involved only wrist movement was fairly rare, only one in ten (10%) demonstrating this method. A further third (32%) demonstrated a method involving some wrist movement and some scrubbing action, but the majority (58%) demonstrated only a scrubbing action. We have excluded here the 3 people who said they cleaned their teeth with an electric toothbrush. Table 13.4 gives the results for the different attendance patterns, and we see that slightly more of the regular dental attenders cleaned their teeth using only a wrist action (15% compared to 7% of the irregular attenders). The differences here are more marked if we compare the proportions who used some wrist action; over half (53%) of the regular attenders used some wrist action in their brushing compared to only 35% of the irregular attenders. Conversely more of the irregular attenders used only a scrubbing action (65% compared to 47% of the regular attenders).

Table 13.4

METHOD OF TOOTH CLEANING, BY DENTAL ATTENDANCE PATTERN

Method of tooth cleaning	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when having trouble	All
	%	%	%	%
Wrist only	15	10	7	10
Wrist and scrub	38	35	28	32
Scrub only	47	55	65	58
	100	100	100	100
BASES—adults who clean their natural teeth	387	156	604	1147*

Base numbers re-weighted.

*Excludes three people who cleaned their teeth with an electric toothbrush.

We looked to see whether the method of tooth brushing was related to the frequency of tooth cleaning (which is itself related to dental attendance pattern, as we saw in Table 13.1), and we give the results in Table 13.5. The proportion of people who used only a wrist action increased as did the frequency of cleaning, from 5% among those who cleaned their teeth less than daily to 15% among those who cleaned them three or more times daily. The proportion who used some wrist action in their tooth cleaning varied considerably, from 27% among those who cleaned their teeth less than daily to 58% among those who cleaned them three or more times daily. It is unfortunate that a high proportion (42%) of those who cleaned their teeth three or more times a day (who were obviously demonstrating an interest in their oral hygiene) cleaned their teeth with only a scrubbing action, a method which has been suggested by some dentists to be less than efficient.

We were interested to see how many people had been shown by the dentist how best to clean their teeth. The great majority (84%) said they had not been shown, and 16% said they had been shown by the dentist. Since the regular dental attenders are much more often in contact with the dentist, and have therefore had a much greater opportunity of being shown how best to clean their teeth, we might expect a considerable variation with attendance pattern in whether or not people had been shown. Although more of the regular dental attenders said they had been shown (Table 13.6), the differences were not particularly marked; less than a quarter (24%) of the regular attenders said they had been shown how to clean their teeth compared to just over one in ten (11%) of those who only went to the dentist when having trouble.

Table 13.5

METHOD OF TOOTH CLEANING, BY FREQUENCY OF CLEANING

Method of tooth cleaning	Adults with some natural teeth				
	Frequency of cleaning natural teeth				All
	Less than daily	Once daily	Twice daily	Three or more times daily	
	%	%	%	%	%
Wrist only	5	7	13	15	10
Wrist and scrub	22	30	35	43	32
Scrub only	73	63	52	42	58
	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
BASES-adults who clean their natural teeth	191	349	480	127	1147*

Base numbers re-weighted.

*Excludes three people who cleaned their teeth with an electric toothbrush.

Table 13.6

WHETHER SHOWN HOW BEST TO CLEAN TEETH, BY DENTAL ATTENDANCE PATTERN

Whether shown how best to clean natural teeth	Adults with some natural teeth			
	Regular check-up	Occasional check-up	Only when having trouble	All
	%	%	%	%
Shown by dentist	24	17	11	16
Not shown	76	83	89	84
	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
BASES-adults who clean their natural teeth	389	156	605	1150

Base numbers re-weighted.

We were interested in whether those people who said they had been shown how best to clean their teeth used a different method of tooth brushing from those who had not been shown (Table 13.7). More of those who said they had been shown used only a wrist action (21% compared to only 8% of those who had not been shown), but there was a high proportion (44%) who used only a scrubbing action among those who had said they had been shown.

Table 13.7
METHOD OF TOOTH CLEANING, BY WHETHER SHOWN HOW BEST TO CLEAN TEETH

Method of tooth cleaning	Adults with some natural teeth		
	Whether shown by dentist		All
	Shown	Not shown	
	%	%	%
Wrist only	21	8	10
Wrist and scrub	35	32	32
Scrub only	44	60	58
	100	100	100
BASES—adults who clean their natural teeth	180	967	1147*

Base numbers re-weighted.

*Excludes three people who cleaned their teeth with an electric toothbrush.

One might assume that a demonstration of the best way to clean the natural teeth will have a more long-lasting effect on a young person than on an older person, and that there would therefore be a tendency for more younger adults to receive instruction on tooth cleaning from the dentist. We therefore looked to see whether there were any differences with age in whether or not a demonstration had been given, and in fact the proportion of people who said they had been shown decreased slightly with age (the proportions who had been shown were 20% among those aged 16-24, 15% among those aged 25-34, 16% among those aged 35-44, 12% among those aged 45-54 and 12% among those aged 55 and over). We also looked to see if the proportions who used the different tooth cleaning methods (wrist only, scrub only, or a method involving wrist and scrub) varied with age. The proportion who used only a wrist action did not vary with age, although the proportion who used wrist and scrub decreased with age, and the proportion who used only a scrubbing action increased with age.

13.3 Tooth Cleaning and Dental Health

We have already seen that the frequency and method of brushing the natural teeth differ widely for different people, and we next investigate whether tooth brushing appears to be related to the person's dental health.

The importance attached to tooth brushing is associated with other dental behaviour (for instance we have seen that the frequency and method of tooth brushing vary with dental attendance), and it is therefore very difficult to assess the effect of tooth brushing independently. The only way to do this objectively is, of course, to set up an experimental situation where one can isolate and test the effect of tooth brushing alone. There are some points, however, which we feel the survey data can illuminate and three aspects of dental health which are of particular value to study in relation to tooth brushing are tooth decay, oral hygiene and gum trouble.

Ideally one would like to see if tooth brushing was related to total decay experience. Unfortunately survey data among adults raises two major obstacles to such an analysis. Firstly the tooth brushing information collected referred to the current habits of the person concerned whereas decay experience had built up over his lifetime. Secondly total decay experience among adults cannot be assumed to be the sum of the teeth that are filled, currently decayed or missing, since we have shown that among some adults, extracted teeth were not necessarily previously decayed (Chapter 10). An estimate of decay experience among adults is therefore difficult (if not impossible) to make from the survey data.

If instead of trying to estimate total decay experience one looks at the current decay situation then one is immediately concerned with the length of time since the last dental treatment was received. But a person who visits the dentist in pain may receive emergency treatment to relieve the pain without having treatment for all the teeth that are decayed. Therefore the only fairly homogeneous group is that of regular dental attenders who have been to the dentist within a specified period, and we confined our study of tooth brushing and current decay to those regular attenders who had visited the dentist in the six months prior to the survey (Table 13.8).

Among this group of regular attenders there was in fact no real evidence that current decay was associated with the frequency of tooth brushing. Among those who brushed their teeth only once a day the proportion who were decay-free was similar to the proportion decay-free among those who brushed their teeth three or more times a day (49% and 57% respectively). Slightly more of those who brushed their teeth once a day had three or more decayed teeth compared to those who brushed them three or more times a day (the proportions who had three or more decayed teeth were 25% and 10% respectively), but it is difficult to tell how much of this difference was due to tooth cleaning and how much was due to other factors.

Table 13.8

THE NUMBER OF DECAYED TEETH AMONG REGULAR ATTENDERS WHO HAVE BEEN TO THE DENTIST IN THE SIX MONTHS PRIOR TO SURVEY, BY FREQUENCY OF TOOTH CLEANING

Number of decayed teeth	Adults with some natural teeth, who go to the dentist for a regular check-up, and who have been to the dentist in the six months prior to survey					
	Frequency of cleaning natural teeth					All
	Never	Less than daily	Once daily	Twice daily	Three or more times daily	
	%	%	%	%	%	%
0	-	+	49	56	57	55
1-2	-	+	26	34	33	32
3-5	-	+	19	8	10	10
6 or more	-	+	6	2	-	3
			100	100	100	100
Average number of decayed teeth	-	+	1.6	0.9	0.8	1.0
BASES	-	12	53	145	52	262

Base numbers re-weighted.

*Base number too small to give percentages or average.

The regular attenders who have visited the dentist in the six months prior to the survey are, of course, only a small proportion of all people with some natural teeth. For the majority of adults with some natural teeth an analysis of tooth brushing and current decay is less than meaningful. Clearly the subject of tooth cleaning and tooth decay is not one which can be tackled very satisfactorily from survey data.

We next examine whether current toothbrushing habits are associated with current oral hygiene and gum condition. Before proceeding to the results it is worth considering to what extent one might expect toothbrushing to be associated with oral hygiene and gum conditions.

We have from the dental examination a measure of current debris. Since debris is built up in the short term and can be removed by toothbrushing then we would expect that if there was to be any association with the frequency and method of toothbrushing it would be found in connection with debris.

Although calculus deposits, once formed, will need dental attention for their removal, it is feasible that adequate toothbrushing may prevent the formation of calculus in the first place. When considering the association here, it is important to take some account of the likelihood of recent dental intervention.

Toothbrushing is recommended as a method of reducing and preventing the milder levels of gum disease and therefore one might expect the frequency and method of toothbrushing to be of interest in relation to the periodontal score. There are complications with the periodontal score, however, since a dentist may have suggested to a patient that, because of the state of his (the patient's) gums

he should brush his teeth in a particular way. In such cases the implied cause and effect relationship is reversed, and the associations may be completely masked. This illustration indicates how cause and effect cannot be measured by survey data, but only by a properly designed experimental situation.

The periodontal conditions, recession and need for periodontal extraction are at such an advanced stage that current toothbrushing is not likely to be closely associated. We have therefore omitted these two indicators from our analysis of toothbrushing and gum condition.

Table 13.9 gives the level of oral hygiene and periodontal score in relation to the frequency of toothbrushing, for all adults with some natural teeth, and we consider firstly the situation with regard to debris, given in the first section of the table. The amount of debris declined steadily as the frequency of tooth brushing increased. Among those people who said they cleaned their teeth less than daily only 14% were debris-free, this proportion increasing to 27% among those who cleaned them three or more times daily. In terms of maintaining a debris-free mouth, therefore, the improvement in the level of success among those who cleaned their teeth the most often, was by no means overwhelming, since even among those who said they cleaned their teeth three or more times a day nearly three quarters were not debris-free. There was a marked variation, however, in terms of the more serious debris scores. Among adults who brushed their teeth less than daily 44% had an average debris score of one or more, compared to 29% among those who brushed daily, 21% who brushed twice a day, and 14% who brushed their teeth three or more times a day. The overall average debris score declined from 0.78 among those who brushed their teeth less than daily, to 0.44 among those who brushed three or more times a day.

There is a similar result for calculus, the proportion who were found to be calculus-free increasing from 32% to 50%, the proportion having an average calculus score of one or more decreasing from 35% to 20%, and the overall average calculus score decreasing from 0.78 to 0.44. Since intervention by the dentist probably plays an important role where calculus is concerned, we looked at the relation between calculus and toothbrushing for those adults who have had recent dental treatment which probably included removal of any calculus present at the time, ie the regular dental attenders whose last visit was in the six months prior to the survey. Confining our attention to these people, we found that there was virtually no variation in the prevalence of calculus according to the frequency of toothbrushing. The overall association between calculus and toothbrushing (Table 13.9) is probably due as much to attendance at the dentist as to toothbrushing itself.

In terms of the periodontal score the proportion who were free from any trouble increased as did the frequency of tooth cleaning, from 3% among those who cleaned their teeth less than daily, to 13% among those who cleaned them three or more times a day. Clearly, periodontal involvement is only avoided by a small proportion of people, even among those who clean their teeth the most regularly. It is of interest to look at the higher periodontal scores, and we see that over half (59%) of those who cleaned their teeth less than daily had an average periodontal score of one or more (ie they had, on average, some inflammation present on every tooth in the mouth). This proportion fell steadily to 34% among those who cleaned their teeth three or more times a day. The overall average periodontal score fell steadily as the frequency of tooth brushing increased, from

Table 13.9

ORAL HYGIENE AND GUM CONDITION SCORES BY FREQUENCY OF TOOTH CLEANING

	Adults with some natural teeth					
	Frequency of cleaning natural teeth					All
	Never	Less than daily	Once daily	Twice daily	Three or more times daily	
DEBRIS SCORE [#]	%	%	%	%	%	%
No assessment	*	1	1	1	-	1
Zero	*	14	15	26	27	20
Less than 0.5	*	14	17	23	27	20
0.5, less than 1	*	27	38	29	32	31
1, less than 2	*	40	26	20	14	25
2 or more	*	4	3	1	-	3
		100	100	100	100	100
Overall average	*	0.78	0.67	0.55	0.44	0.62
CALCULUS SCORE [#]	%	%	%	%	%	%
No assessment	*	1	1	1	-	1
Zero	*	32	40	50	50	43
Less than 0.5	*	16	16	14	17	15
0.5, less than 1	*	16	17	11	13	14
1, less than 2	*	19	18	16	15	17
2 or more	*	16	8	8	5	10
		100	100	100	100	100
Overall average	*	0.78	0.60	0.51	0.44	0.59
PERIODONTAL SCORE [#]	%	%	%	%	%	%
No assessment	*	-	-	-	-	-
Zero	*	3	5	9	13	7
Less than 0.5	*	13	19	28	25	22
0.5, less than 1	*	25	29	23	28	26
1, less than 2	*	40	33	29	26	31
2 or more	*	19	14	11	8	14
		100	100	100	100	100
Overall average	*	1.37	1.12	0.91	0.83	1.08
BASES	20	191	351	480	128	1170

Base numbers re-weighted.

[#]Average score, per person per tooth at risk.

*Base number too small to give percentages or average.

1.37 among those who cleaned their teeth less than daily to 0.83 among those who cleaned them three or more times a day.

We were interested to see if the method of tooth cleaning (in terms of whether a wrist or scrubbing action was used) was more important than the frequency of tooth cleaning in determining the level of oral hygiene and the condition of the gums, and we give the results in Table 13.10.

Table 13.10
ORAL HYGIENE AND GUM CONDITION SCORES
BY METHOD OF TOOTH CLEANING

DEBRIS SCORE*	Adults with some natural teeth			
	Method of tooth cleaning			All
	Wrist only	Wrist and scrub	Scrub only	
	%	%	%	%
No assessment	1	1	1	1
Zero	30	21	19	20
Less than 0.5	22	23	18	20
0.5, less than 1	27	33	31	31
1, less than 2	18	20	29	25
2 or more	2	2	2	3
	100	100	100	100
Overall average	0.46	0.57	0.64	0.62
	%	%	%	%
CalcULUS SCORE*				
No assessment	1	1	1	1
Zero	46	48	42	43
Less than 0.5	15	16	14	15
0.5, less than 1	16	15	13	14
1, less than 2	17	15	18	17
2 or more	5	5	12	10
	100	100	100	100
Overall average	0.47	0.46	0.64	0.59
	%	%	%	%
PERIODONTAL SCORE*				
No assessment	-	-	-	-
Zero	6	10	6	7
Less than 0.5	30	25	20	22
0.5, less than 1	27	30	23	26
1, less than 2	28	26	35	31
2 or more	9	9	16	14
	100	100	100	100
Overall average	0.92	0.89	1.13	1.08
BASES	114	370	662	1170 [#]

Base numbers re-weighted.

*Average score, per person per tooth at risk.

[#]Includes those who never clean their teeth and those who have an electric toothbrush, who are not included elsewhere in the table.

There was some association between the method of tooth cleaning and the prevalence of debris. Among those who used only a wrist action in their toothbrushing, almost one third (30%) were debris-free compared to just under one fifth (19%) debris-free among those who used only a scrubbing action. Conversely the proportions with an average debris score of one or more were 20% and 31% respectively. The overall average debris score ranged from 0.46 among those who used only a wrist action, to 0.57 among those who used some wrist and some scrub, to 0.64 among those who used only a scrubbing action in their toothbrushing. The range of the overall debris score according to the frequency of toothbrushing was from 0.44 to 0.78 (Table 13.9), suggesting that frequency is the more important variable.

The proportion of people who were calculus-free hardly varied according to what method of toothbrushing was used. In terms of the overall average calculus score it was those people who used only a scrubbing action in their toothbrushing who were in the least favourable position, although the overall average calculus score was similar among the other two groups of people. A similar result is evident for the periodontal score, in that the proportion who had no periodontal involvement hardly varied according to the method of toothbrushing, but it was those people who used only a scrubbing action who had the highest overall average periodontal score.

It is difficult to tell how much of this association between gum condition and the method of toothbrushing is a direct one and how much of it is due to other factors, for example the frequency of toothbrushing (we saw in Section 13.2 that the method and frequency of toothbrushing were related). Doubtless other dental habits, which may be more important than the method of toothbrushing, also play a part in determining gum condition. It must be stressed again that the effect of toothbrushing on dental health is very difficult to interpret from survey data, and would need to be investigated under experimental conditions.

14. Partial Dentures and Gum Conditions

As part of the dental examination the dentists drew a detailed diagram of all the partial dentures that they saw. The purpose of this rather difficult exercise was twofold. We wished to know which teeth had been replaced by dentures and which had not so that we could carry out our estimates of potential denture need (see Chapter 9), and we also wanted to see whether we could obtain any evidence on whether or not natural teeth which were closely involved with a denture were more or less likely to be involved with periodontal trouble or recession.

To carry out this latter analysis we were dependent on the detail of the dental examiners' sketches to classify which teeth were directly involved with the denture and which were not. As can be imagined the drawing of the sketches and the interpretation of them afterwards were by no means easy tasks, nevertheless the exercise provided an opportunity to see whether the direct involvement of natural teeth with dentures had any obvious importance with respect to gum condition. All the retained natural teeth among denture wearers were classified as being involved in one of the following ways with respect to the dentures:-

- (i) Not in the same jaw as the denture
- (ii) Not supporting the denture
- (iii) Supporting the denture by way of a clasp
- (iv) Supporting the denture on the gum around the tooth
- (v) Supporting the denture both by way of a clasp and by the gum

Although there were 410 people who had a combination of natural teeth and dentures, the number of teeth that were in some of the above categories was rather small. We had hoped that we would be able to carry out the analysis for different tooth positions in the mouth but the following description of how the retained teeth were distributed within the above five groups, regardless of tooth position, indicates the restrictions imposed by sample size and type of denture provision.

(a) ADULTS WITH NATURAL TEETH AND PARTIAL DENTURES

	Upper jaw	Lower jaw
Full clearance	173	5
No sketch drawn	25	31
Sketch drawn	212	374
	<hr/> 410	<hr/> 410

(b) NUMBER OF RETAINED NATURAL TEETH

	Upper jaw	Lower jaw	Whole mouth
Missing	1633	2302	3935
Present	1759	3682	5441
	<hr/> 3392	<hr/> 5984	<hr/> 9376

(ie 212 x 16) (ie 374 x 16)

(c) DENTURE ROLE OF RETAINED TEETH

	Upper jaw	Lower jaw	Whole mouth
No denture in that jaw	155	3081	3236
Not supporting denture	421	123	544
Clasp support, no gum support	9	33	42
Gum support, no clasp support	1121	400	1521
Clasp and gum support	53	45	98
	<hr/> 1759	<hr/> 3682	<hr/> 5441

(Reweighted figures)

Of all the 5441 natural teeth retained by people who had also been provided with a denture, only about one tooth per hundred was supporting the denture solely by way of a clasp, and only about two teeth per hundred were supporting the denture by way of a clasp and the gum; nearly a third of the 5441 teeth were supporting the denture on the surrounding gum and two thirds of the natural teeth were not involved with supporting the denture at all. The main reason why this latter group was so large was that many people had an upper jaw denture but no lower jaw denture. With the number of teeth supporting the denture by way of clasps being so small (about three teeth per hundred), they have had to be included in one group for the analysis, regardless of whether or not gum support was also involved, although for the majority of clasps the gum was also involved, especially in the upper jaw.

We tested the variation between the teeth which had different roles using two measures of gum condition, firstly the proportion of teeth with some periodontal involvement, that is some inflammation or pocketing, and secondly, the proportion of teeth which were recorded as having recession.

In statistical terms this means we tested the null hypothesis that the differences between the gum condition of retained teeth which supported the denture and retained teeth which did not, were not significantly different from that which might be expected by chance.

Table 14.1

GUM CONDITION AND DENTURE ROLE OF RETAINED TEETH AMONG THE PARTIALLY-DENTURED

Gum condition	Denture role of retained teeth			
	No denture in that jaw	Not supporting denture	Gum support only	Clasp support with or without gum support
Proportion of teeth with periodontal score of one or more	67% (3236)	67% (544)	73% (1521)	78% (140)
Proportion of teeth with recession	11% (3236)	9% (544)	11% (1521)	21% (140)

Base numbers (re-weighted) are given in brackets.

Firstly we examined whether there was any significant difference between the gum condition of teeth retained in a jaw where there was no denture (the first column of Table 14.1) and the gum condition of teeth retained in a jaw where there was a denture, but which did not support the denture (the second column of Table 14.1). As far as periodontal involvement was concerned 67% of teeth in each of these two groups had some periodontal trouble; and in terms of recession the proportion of teeth involved were 11% and 9% respectively, these two proportions not being significantly different.

Next we investigated whether there was any evidence of differences in the gum condition of retained teeth which were not supporting the denture, and of teeth which were supporting the denture on the surrounding gum (the figures are given in the second and third columns of the table). In terms of periodontal involvement the teeth supporting the denture on the surrounding gum included a higher proportion with some periodontal involvement (73% compared to 67%). Although this difference is not very large it is significantly different. In terms of recession 11% of teeth which supported the denture on the gums had recession, and this was not significantly different from the 9% with recession among teeth which had no supporting role.

The final group of teeth to be considered are those which had a clasp to support the denture (the majority of these teeth also supported the denture on the gum), and the figures are given in the fourth column of Table 14.1. Among this group 78% of the teeth had some periodontal involvement, compared to 67% of the teeth with no denture supporting role. This difference was statistically significant. Among the teeth with denture clasps 21% had some recession compared with 9% of teeth with no denture supporting role, this difference also being significant.

We have so far considered all retained teeth in the mouth, regardless both of which jaw they were in and which tooth position was involved. Since the provision of dentures is different, and the effect of supporting the denture may well be different, for the two jaws, we extended the analysis to see whether the above results for the mouth as a whole were repeated when the jaws were examined separately. This further analysis immediately led us into difficulties with sample size, but the general picture was as follows (Table 14.2).

Table 14.2
GUM CONDITION AND DENTURE ROLE OF RETAINED TEETH
FOR UPPER AND LOWER JAWS SEPARATELY

Gum condition		Denture role of retained teeth			
		No denture in that jaw	Not supporting denture	Gum support only	Clasp support with or without gum support
Proportion of teeth with periodontal score of one or more	Upper jaw	42% (155)	67% (421)	73% (1121)	78% (62)
	Lower jaw	68% (3081)	67% (123)	71% (400)	78% (78)
Proportion of teeth with recession	Upper jaw	8% (155)	8% (421)	8% (1121)	18% (62)
	Lower jaw	11% (3081)	12% (123)	18% (400)	24% (78)

Base numbers (re-weighted) are given in brackets.

As before, we compare firstly the gum condition of those retained teeth in jaws where there was no denture, and teeth retained in a jaw where there was a denture, but which did not support the denture. The group comprising upper jaw teeth in a jaw with no denture was very small since it is unusual as a pattern of dentures to have a lower denture and no upper denture. We looked at what information we had about people concerned and found that they were mostly regular dental attenders, they tended to be younger than the average partial denture wearer, and most of their upper jaw teeth were present. This probably explains why the proportion of the teeth with periodontal involvement was particularly low (42%). There was no difference with respect to recession between these teeth and those in a dentured jaw but with no support role. In the lower jaw there was no difference between the two groups, either in terms of periodontal involvement or recession.

Secondly we compare, separately for the upper and lower jaws, whether there was any difference in gum condition between retained teeth which did not support the denture and teeth which supported the denture on the surrounding gum (the second and third columns of Table 14.2). Upper jaw teeth which supported the denture on the gums included proportionately more teeth with periodontal trouble than those upper teeth not supporting the denture (73% compared to 67%), this being significant at the 5% level. As far as recession was concerned 8% of upper jaw teeth supporting the denture on the gum had recession, and this was no different from upper teeth with no supporting role.

In the lower jaw the proportion of teeth providing gum support which were periodontally involved was 71%, and proved not to be significantly different from the 67% with periodontal involvement among lower teeth with no supporting role. In terms of recession 18% of lower jaw teeth supporting the denture had gum recession, and this did not prove to be significantly different from the 12% among lower teeth not supporting the denture. The number of retained teeth in dentured lower jaws not supporting the denture was, however, very small (123). When this group of non-supporting teeth was combined with lower teeth in non-dentured jaws (which had the same amount of recession), then there was a significant difference between

lower teeth supporting the denture on the gums and all lower teeth with no supporting role.

Finally we consider the results for clasps, separately for the two jaws. In the upper jaw 78% of teeth which supported the denture by clasps had some periodontal involvement, but because of the reduction in sample size through looking at the two jaws separately, this was not in fact significantly different from the 67% with some periodontal trouble among upper teeth with no supporting role. In terms of recession in the upper jaw, teeth with clasps demonstrated more recession than teeth with no supporting role (18% compared to 8%). In the lower jaw we have similar results for clasps, in that there was no significant difference in terms of periodontal involvement, but lower teeth supporting the denture by way of clasps did have more recession than lower teeth with no supporting role.

In summary we find that we would have liked a very much bigger sample for this investigation as looking at the jaws separately resulted in sub-groups being small, when we would ideally have liked to examine the situation not only for the two jaws separately but also for the different tooth positions. We would also draw attention to the fact that our results only show associations, not direct cause and effect relationships. We did not standardise the groups in terms of age or attendance pattern and so if different denture situations are more likely among people of different type, whose dental health may vary, then our findings may be the result of confounded variables.

Keeping all these factors in mind our data suggests that among partial denture wearers, for one reason or another, teeth which are providing only gum support for dentures are more likely to be periodontally involved than teeth not providing support, as are those providing clasp support (often with gum support as well). In terms of recession teeth that are supplying gum support only were not, in general, more likely to have recession than those providing no support, although there was evidence that for lower jaw teeth there was a difference. Teeth involved with clasps were more likely to have recession than teeth with no denture supporting role and this was so for upper jaw teeth and lower jaw teeth.

15 What Knowledge Do People Have About Factors Which Affect Natural Teeth, and How Do They Use it?

In this chapter we pursue three particular, and rather separate, lines of thought about dental health. Firstly whether there is much variation in people's knowledge about factors which affect dental health; secondly which sub-groups of the dentate population are most likely to have established a pattern of regular dental attendance, and thirdly what proportion of dentate adults were found to be dentally fit at the time of the survey examination.

15.1 Which Factors Are Very Important for Keeping Teeth Healthy?

During the interview we asked people to tell us how important they felt certain factors to be for keeping teeth healthy. We asked them about each factor in turn, and they gave the level of importance which they attached to it in terms of being very important, fairly important, not very important or not at all important. The five factors that we asked about were :-

- (i) not eating sweets
- (ii) regular visits to the dentist
- (iii) cleaning teeth regularly
- (iv) having fluoride in the water
- (v) a healthy diet

We used factors which we felt were fairly commonly known, and therefore expected to get some 'acceptable' answers rather than true personal opinions, but this did not particularly negate the usefulness of the question since we wanted to examine whether the level of 'acceptable' answers varied between different people, and what level of importance was ascribed to the different factors relative to each other. The results are given in Table 15.1, in the order in which the factors appeared in the question.

We start with examining the relative position of the five factors; 90% of adults said that regular tooth cleaning was very important for keeping teeth healthy, 76% said that regular visits to the dentist were very important, 55% said that a healthy diet was very important, 41% said that not eating sweets was very important and 11% said that having fluoride in the water was very important for keeping teeth healthy. It is interesting to find that tooth cleaning is nearly universally accepted as being very important for dental health. It is the translation of the idea into practice which is more difficult to attain universally (see Chapter 13).

Table 15.1
PROPORTION OF PEOPLE CONSIDERING EACH FACTOR TO BE VERY IMPORTANT
IN KEEPING TEETH HEALTHY

Proportion considering each factor to be very important in keeping teeth healthy	Not eating sweets	Regular visits to the dentist	Cleaning teeth regularly	Having fluoride in the water	A healthy diet	BASES
All adults	41%	76%	90%	11%	55%	2076
Men	39%	69%	86%	11%	47%	989
Women	43%	81%	93%	11%	62%	1087
Edentulous adults	46%	73%	90%	13%	64%	906
Dentate adults	37%	77%	90%	10%	48%	1170
Dentate adults:-						
Regular attenders	36%	93%	94%	8%	52%	389
Occasional attenders	36%	80%	89%	12%	43%	157
Only when have trouble	38%	67%	87%	12%	47%	623
Social class:-						
I, II & III non-manual	41%	82%	92%	11%	59%	547
III manual	39%	73%	89%	10%	50%	786
IV and V	43%	72%	87%	13%	55%	551
Age:-						
16-24	28%	72%	87%	12%	36%	393
25-34	37%	79%	92%	9%	48%	347
35-44	47%	79%	92%	11%	58%	363
45-54	44%	80%	91%	12%	58%	348
55 and over	47%	71%	89%	12%	67%	625

Base numbers re-weighted.

We examined whether men and women differed in the proportions who thought the various factors to be very important. The overall rank order was the same but a higher proportion of women than men said dental attendance and tooth cleaning were very important. A higher proportion of women than men also thought diet was very important.

Whether or not people had already lost all their own natural teeth did not change the rank order of the five factors although proportionately more edentulous adults than dentate adults said diet, fluoride and not eating sweets was very important. Dentate adults put more emphasis than edentulous adults on regular dental visits.

The rank order was also unchanged for the three different social class groups, although social class I, II and III non-manual more often rated regular dental visits, regular tooth cleaning and a healthy diet as very important.

Again, with age, there were no major changes in rank order but the youngest group (16-24) less often said that not eating sweets, regular dental visits, regular tooth cleaning and a healthy diet were very important. These findings for the young adults are consistent with the difficulties found in persuading this age group to have regular treatment during the period between parental control and an established adult way of life.

Perhaps a more important fact than the fairly small differences between sub-groups with different attitudes and experience is the overall similarity between the ratings of these five factors. For example although Irregular dental attenders were less likely to say that regular dental visits were important than were the regular attenders, nevertheless 67% of them did say it was very important. Similarly 87% of irregular dental attenders considered that regular tooth cleaning was very important. It is not so much within basic knowledge that the problem of improving dental health lies but in the motivation of people to act upon the knowledge that they have.

15.2 Who Are the Regular Dental Attenders?

Throughout the report we have concluded that people's stated dental attendance pattern has a significant relationship with their dental health. Sometimes it has not been obvious whether the benefit of regular attendance has accrued as a result of direct dentist intervention, or whether the attitudes which made the individual a regular attender are the more important factors.

We stress the fact that it may well be the attitudes behind what makes a person a regular attender that are important, in which case it will not be enough to change dental attendance patterns alone if attitudes towards restorative treatment, personal oral hygiene, and the acceptability of dentures do not change, and therefore remain out of line with the current attitudes of regular attenders.

We confine our discussion of attendance patterns to dentate adults since the dental attention required for full dentures is of a completely different nature.

Table 15.2 shows, for those with some natural teeth, how dental attendance varied with age. The variation was not very marked: a fairly constant proportion of people in each age group went to the dentist for a regular check-up, and there was a slight increase with age in the proportion who only went when they were having trouble. It is of particular interest to examine the two youngest age groups, that is those aged 16-24 and those aged 25-34. Even among these people, only one third were in the habit of going to the dentist for a regular check-up, and half only went when they were having trouble with their teeth.

Table 15.2

DENTAL ATTENDANCE PATTERN FOR ADULTS OF DIFFERENT AGES WITH SOME NATURAL TEETH

Attendance pattern	Adults with some natural teeth					
	Present age					All ages
	16-24	25-34	35-44	45-54	55 and over	
	%	%	%	%	%	%
Regular check-up	33	34	36	33	29	33
Occasional check-up	17	15	9	10	10	14
Only when having trouble	50	51	55	57	61	53
	100	100	100	100	100	100
BASES	382	297	234	152	105*	1170*

Base numbers re-weighted.

*Includes one person who had never been to a dentist.

The dental attendance patterns of men and women were markedly different, as is shown in Table 15.3. A much greater proportion of women said they went to the dentist for a regular check-up than men (40% compared to 27%) and, conversely, a much greater proportion of men went only when they were having trouble (61% compared to 45% for women).

Table 15.3
DENTAL ATTENDANCE PATTERN FOR DIFFERENT SEXES

Attendance pattern	Adults with some natural teeth		
	Males	Females	Both sexes
	%	%	%
Regular check-up	27	40	33
Occasional check-up	12	15	14
Only when having trouble	61	45	53
	<u>100</u>	<u>100</u>	<u>100</u>
BASES	601	569*	1170*

Base numbers re-weighted.

*Includes one person who had never been to a dentist.

Dental attendance pattern also varied greatly with social class (Table 15.4), those people in the top social class group being markedly different from other people. In this top group, just over half (51%) of adults with some natural teeth were in the habit of going to the dentist for a regular check-up, compared to only 20% in the lowest social class group. Among adults in the highest social class group 35% went only when they were having trouble compared to almost twice this proportion (68%) in the lowest social class group (the proportion of people who went for an occasional check-up was fairly constant for all social classes).

Table 15.4
DENTAL ATTENDANCE PATTERN, FOR ADULTS OF DIFFERENT SOCIAL CLASSES

Attendance pattern	Adults with some natural teeth			
	Household Social Class			All social classes [#]
	I, II and III non-manual	III manual	IV non-manual, IV manual and V	
	%	%	%	%
Regular check-up	51	26	20	33
Occasional check-up	14	13	12	14
Only when having trouble	35	61	68	53
	<u>100</u>	<u>100</u>	<u>100</u>	<u>100</u>
BASES	367	470	255	1170*

Base numbers re-weighted.

[#]Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

*Includes one person who had never been to a dentist.

Having found that dental attendance pattern differed with sex and social class, we now look at its variation with combinations of these factors, giving the results for the different age groups separately. To avoid a very complex table we shall look only at the variation in the proportion of people who attended the dentist for a regular check-up.

Table 15.5 shows that the greatest proportion of regular dental attenders occurred among the youngest females of the top social class group, 61% of whom attended the dentist for a regular check-up. In fact among the youngest people in the top social classes the sex difference was particularly marked, only 39% of the males attending for a regular check-up. It is interesting that in this age group the differences between the top two social class groups, although large, were almost outweighed by the large differences between the sexes; almost as many females in the intermediate social class group attended for a regular check-up as males in the top social class group (the proportions were 36% and 39% respectively). The smallest proportion of regular attenders occurred among the oldest adults, that is those aged 55 and over, of the lowest social class group.

Table 15.5
PROPORTION OF PEOPLE WHO GO TO THE DENTIST FOR A REGULAR CHECK-UP,
FOR DIFFERENT SOCIAL CLASSES, SEXES AND AGES

Household social class		Adults with some natural teeth			
		Proportion who go to the dentist for a regular check-up			
		Present age			All ages
		16-34	35-54	55 and over	
I, II and III non-manual	Male	39% (79)	55% (66)	32% (22)	44% (167)
	Female	61% (108)	53% (68)	49% (25)	57% (200)
	Both	52% (186)	54% (134)	41% (47)	51% (367)
III manual	Male	21% (162)	22% (82)	* (15)	20% (260)
	Female	36% (136)	29% (67)	* (7)	34% (209)
	Both	28% (298)	25% (149)	15% (22)	26% (470)
IV non-manual, IV manual and V	Male	19% (76)	20% (55)	* (13)	18% (145)
	Female	25% (74)	19% (29)	* (6)	22% (110)
	Both	22% (151)	20% (84)	5% (19)	20% (255)
All social classes [#]	Male	26% (335)	32% (212)	19% (54)	26% (601)
	Female	40% (346)	38% (174)	39% (50**)	39% (569**)
	Both	33% (680)	35% (386)	29% (105**)	33% (1170**)

Base numbers re-weighted.

*Base numbers too small to give percentages.

[#]Includes the housewife, student, unemployed and unclassifiable categories which are not included elsewhere in the table.

**Includes one person who had never been to a dentist.

It would therefore appear that among those with some natural teeth dental attendance varies considerably with sex and social class, but not appreciably with age.

Anyone wishing to change the status quo to make regular dental attendance more evenly spread would need to direct their attention to females in the lower social class groups and males of any social class group. The difference in the proportions of regular attenders among the females in the different social class groups suggests that women might be easier to convert to regular attendance and that a special approach might be needed for the men.

15.3 How Many Dentate Adults Are Dentally Fit?

Among adults who still had some natural teeth at the time of the survey there was considerable variation from person to person as to how many natural teeth were still present. The chance of having any active decay, or being involved periodontally at the time of the survey was to some extent dependent on the number of teeth at risk, and so we have presented our findings on dental fitness for several different groups defined by the extent of their previous tooth loss and denture provision.

We defined as dentally fit those people who had no currently decayed teeth and no contra-indication with respect to gum condition. This was a fairly harsh definition in so far as it includes debris, calculus and inflammation as contra-indications, and perhaps the dentist himself cannot be expected to be responsible for attaining this level of patient dental fitness; but the dentist and patient should, together, be aiming at this level.

Since the different component parts of estimates of the person's gum condition play varying roles of importance we have shown their contributions separately as well as in combination (Table 15.6).

Among all dentate adults one in three had no active decay at the time of the survey. This proportion was not appreciably different for people with different numbers of teeth at risk except in the group who had lost twelve or more teeth but had not been provided with any dentures, among whom fewer than one in six were decay-free at the time of the survey. The fact that fairly large tooth loss had not for these people resulted in the provision of dentures suggests that they were not particularly dentally-conscious people. Those people who had a full upper denture had the highest proportion of decay-free mouths, but this is not surprising since not only did they have at least 16 missing teeth, but the teeth they still had were in the lower jaw, where the anterior teeth have a smaller decay risk.

As far as the presence of debris was concerned the only group that differed were the people with a full upper denture, for whom a higher proportion of debris-free mouths were found. Here again, of course, the complete absence of teeth in the upper jaw (and maybe extensive loss in the lower jaw as well) reduced the risk of finding debris on natural teeth.

Table 15.6

PROPORTION OF DENTATE ADULTS DENTALLY FIT, SHOWING VARIATIONS IN RISK

Proportion with:	Adults with some natural teeth					
	No dentures			Dentures		All
	5 or fewer teeth missing	6-11 teeth missing	12 or more teeth missing	Not a full upper denture	Full upper denture	
No decay	38%	31%	14%	34%	41%	33%
No debris	21%	18%	19%	21%	32%	21%
No calculus	52%	44%	31%	44%	44%	45%
Zero periodontal score	8%	8%	4%	6%	6%	7%
No recessed gums	88%	78%	44%	61%	51%	70%
No need of periodontal extraction	99%	98%	87%	95%	89%	95%
No gum trouble at all	5%	2%	1%	2%	4%	3%
No decay nor gum trouble (ie "dentally fit")	4%	1%	-	1%	2%	2%
BASES	275	387	98	237	173	1170

Base numbers re-weighted.

The presence of calculus varied with the number of teeth at risk, the highest proportion of calculus-free people being found amongst those with the least number of missing teeth. This association reflects the fact that age is very much associated with tooth loss and that the group of people with five or fewer missing natural teeth are more likely to be calculus-free because they are younger, age offsetting the fact that they have more teeth at risk. It is in fact those with no dentures and the greatest tooth loss who have the least proportion (31%) calculus-free, this group again being affected by age.

Complete escape from periodontal involvement is a rare circumstance and no group achieved any significantly different result with regard to being free from all such trouble.

We have seen previously that recession is particularly associated with age and this is reflected in the results, because there is an association between age and the number of teeth missing, and the kind of denture provided. Recession is more often found among those with the least teeth remaining or most denture replacement. A similar picture is true with the need for periodontal extraction. The condition is associated with age and therefore occurs significantly more often among those groups which are likely to include a greater proportion of older people.

The proportion of people with no gum trouble at all is very small because so few have escaped from inflammation, and this dominates the position with regard to gum condition. If one combines no contra-indication to gum condition and freedom from current decay, then one arrives at the proportion of dentate adults whom we found to be dentally fit. Of all dentate adults this proved to be 2%; among those who had lost five or fewer natural teeth it was 4%. If one defines being dentally fit as being without gum inflammation as well as being without decay then very few dentate adults indeed are achieving dental fitness.

16 Who Lose Their Teeth First, Men or Women?

One of the issues still not completely resolved is the relationship between dental health, the acceptability of full dentures and the event of full clearance. We have seen in Chapter 10 that there is a considerable amount of latitude in the provision of dentures, accommodating personal choice and fashion as well as dental need.

A curious anomaly that we established in the England and Wales survey is that when asked about their attitudes towards dentistry, their attendance patterns and their dental habits women would seem to be more dentally aware and have better dental habits, than men, and yet it is women who, in the younger age groups, appear to be the first to lose all their natural teeth. We included some questions in the Scottish questionnaire to find out whether or not people thought there was a difference between the sexes in when they lost their teeth, and if there was, who lost them first and why. We were particularly interested in the reasons people gave for the differences which they thought existed, since if these ideas are very strongly held then they could lead to the acceptance of a situation which might have arisen for quite different reasons, in which case any effort to bring about some change would need to be directed not only at the real reason but also at any accepted rationalisations.

In Chapter 4 we showed that the proportion of women aged 35-44 who had lost all their natural teeth was 43% whereas only 26% of men aged 35-44 had lost all of their natural teeth. In age groups thereafter total tooth loss among men caught up to the level among women but at the younger ages women were much more likely than men to have full dentures. It is with this situation in mind that we look at the opinions given about who loses all their natural teeth first.

16.1 Opinions as to Who Lose Their Teeth First, Men or Women

We asked people whether they thought men lost all their teeth first, women lost them first or whether they thought it was the same for both men and women. Altogether 44% said they thought it was the same for the sexes, 31% said they thought women lost them first, 21% said men lost them first and 4% said they did not know.

Table 16.1
OPINIONS AS TO WHO LOSE ALL THEIR
NATURAL TEETH FIRST, BY SEX

Who lose all their natural teeth first?	Men Women		All adults
	%	%	%
Men	29	13	21
Women	23	38	31
No difference	42	46	44
Don't know	6	3	4
	100	100	100
BASES	989	1087	2076

Base numbers re-weighted.

Men and women had somewhat different views about the matter, and the results are shown in Table 16.1. They did not differ in the proportion who thought there was no difference between the sexes, but only 23% of men thought women lost them first whereas 38% of women thought women lost them first. Conversely 29% of men thought men lost them first whereas only 13% of women thought men lost their teeth first. It was of interest to pursue this further to see whether the differences in views were associated with whether or not the person had already lost all his or her natural teeth (Table 16.2).

Table 16.2
OPINIONS AS TO WHO LOSE ALL THEIR NATURAL TEETH FIRST,
BY SEX AND DENTAL STATUS

Who lose all their natural teeth first?	Edentulous adults		Dentate adults	
	Men	Women	Men	Women
	%	%	%	%
Men	34	9	27	16
Women	14	41	29	36
No difference	44	46	40	46
Don't know	8	4	4	2
	100	100	100	100
BASES	389	517	601	569

Base numbers re-weighted.

Dental status made no appreciable difference to the proportion who said they thought there was no difference between the sexes in when they lost their teeth, but men who were edentulous themselves were much more likely to think that their sex lost their teeth first than to think that women lost them first; among edentulous men 34% thought men lost their teeth first and only 14% thought women generally lost them first. Among edentulous women 9% thought men generally lost their teeth first whereas 41% thought women did. Personal experience had evidently influenced the generalisations of edentulous men quite considerably.

We next examined whether people's opinions about who lose all their teeth first varied according to dental attendance pattern. Since the sexes themselves have quite different opinions we present the results separately for men and women (Table 16.3). Opinions about total loss of teeth were not as highly associated with dental attendance as one might have expected. The one outstanding variation was the high proportion of female irregular attenders (42%) who believed that women lose their teeth first, compared with about one third of the women in the other attendance groups.

Table 16.3
OPINIONS AS TO WHO LOSE ALL THEIR NATURAL TEETH FIRST,
BY SEX AND DENTAL ATTENDANCE PATTERN

Who lose all their natural teeth first?	Adults with some natural teeth					
	Regular attenders		Occasional attenders		Only when have trouble	
	Men	Women	Men	Women	Men	Women
	%	%	%	%	%	%
	Men	27	18	25	20	27	13
Women	32	30	28	33	28	42
No difference	33	48	45	45	42	44
Don't know	8	4	2	2	3	1
	100	100	100	100	100	100
BASES	165	225	71	87	365	257

Base numbers re-weighted.

As with attendance pattern little systematic variation in opinions was found in the different social class groups, whereas the differences between the sexes were again emphasised in each social class group (Table 16.4).

Table 16.4
OPINIONS AS TO WHO LOSE ALL THEIR NATURAL TEETH FIRST,
BY SEX AND SOCIAL CLASS

Who lose all their natural teeth first?	Social class I, II and III non-manual		Social class III manual		Social class IV and V	
	Men	Women	Men	Women	Men	Women
	%	%	%	%	%	%
Men	29	13	32	14	25	11
Women	24	40	25	41	21	37
No difference	41	44	39	43	46	51
Don't know	6	3	4	2	8	1
	100	100	100	100	100	100
BASES	225	323	430	357	289	262

Base numbers re-weighted.

We look, finally, to see whether the opinions on who lose their teeth first are similar among people of different ages or whether the views are held differently for people who have lived through different periods of dental treatment provision. Again, since the views of the sexes are different we present the findings separately for men and women (Table 16.5).

Table 16.5
OPINIONS AS TO WHO LOSE ALL THEIR NATURAL TEETH FIRST,
BY SEX AND AGE

Who lose all their natural teeth first?	16-24	25-34	35-44	45-54	55 and over
	Men				
	%	%	%	%	%
	Men	Men	Men	Men	Men
Men	27	32	30	28	31
Women	24	25	26	25	19
No difference	45	40	40	40	41
Don't know	4	3	4	7	9
	100	100	100	100	100
BASES	190	170	168	185	277
	Women				
	%	%	%	%	%
	Men	Men	Men	Men	Men
	Men	Men	Men	Men	Men
Men	19	14	10	12	10
Women	29	43	52	35	34
No difference	50	41	35	50	50
Don't know	2	2	3	3	6
	100	100	100	100	100
BASES	203	177	195	164	348

Base numbers re-weighted.

Men's views on who lose their teeth first were not significantly different whatever age group they were in. Among women on the other hand there were some differences with age. Among women aged 25-34, and 35-44 a significantly higher proportion considered that women lost all their teeth before men. It is interesting that these are the age groups where the differences between the sexes are most apparent. Beyond the age of 45, however, women did not have such a strong belief that women lose their teeth first. Whether this is because later events in life have made any differences that occurred seem insignificant when looking back, or whether the differences between the sexes did not occur for that generation one cannot tell. Some light may be thrown on the matter if we turn to consider the reasons people gave for thinking one or other sex are generally the first to lose all their natural teeth.

16.2 Reasons Given as to Why One of the Sexes Lose Their Teeth First

All the people who expressed an opinion that one or other sex generally lost all their natural teeth first were asked what they thought caused this. The answers

were recorded verbatim and no assistance was given in terms of a suggested range of possible reasons since we wanted to record purely spontaneous replies. Some people gave more than one reason and all reasons given were coded. The reasons were coded on the same frame whether the person was expressing their reasons for men being the first or women the first to lose their natural teeth. Some reasons were not as likely (or impossible) for the different sexes but using a common frame ensured that those answers which applied to either sex were treated identically. There were five main positive answers (Table 16.6); understandably there was a fairly high proportion of people who said they had no idea as to why the difference occurred.

Table 16.6
REASONS GIVEN AS TO WHY MEN OR WOMEN LOSE ALL THEIR NATURAL TEETH FIRST

Reasons given for earlier total tooth loss	Adults who thought men lose their teeth first	Adults who thought women lose their teeth first
Eating more starchy food	11%	36%
Drinking, smoking	31%	1%
Child-bearing	-	38%
Not taking care of teeth	35%	6%
Preferring dentures if have any trouble with teeth	14%	13%
Don't know why	17%	16%
BASES	428	642

Base numbers re-weighted.

The two most frequent reasons given by people who thought men lose their teeth first were that they do not take care of their teeth (35% gave that as a reason) or that drinking and smoking was the reason (31% said that). The two most frequent reasons given by people who thought women lose their teeth first were child-bearing (38% gave that as a reason) and that women eat more starchy food (36%).

Thus the major reasons that people gave for earlier total tooth loss were different for the different sexes. It is particularly of interest to note that the most frequently mentioned reason for men losing their teeth, that they did not take care of them, is only mentioned as a reason by 6% of those who thought that women lose their teeth first. We have already mentioned that other survey data on attendance pattern and dental attitudes and habits suggest that women take more care of their teeth than men, and here we have evidence that the general public themselves believe this to be so. The view that child-bearing has a significant effect on dental health is obviously widely held among those who thought women lose their teeth first. It is likely that this is an interpretation of dental events which happen to coincide with the child-bearing period.*

*The weight of evidence in the dental literature is against an increase of dental decay during child-bearing (eg Thoma's Oral Pathology 2nd edition. Editors R J Gorlin and H M Goldman. 1970. Page 269), and although a pregnancy gingivitis may occur, it is usually a transient condition.

Views about drinking, smoking and eating and their pertinence to earlier tooth loss were very different for the two sexes. Virtually no one thought that women lost their teeth sooner than men because of their drinking and smoking habits, whereas this was the second major explanation given for men. On the other hand proportionately three times as many people who thought women lost their teeth first put this down to eating more starchy food, than was the case for people who thought that men lose their teeth first.

Whichever sex was thought to lose all their teeth first, a similar proportion (14%, 13%) thought this was due to a preference for dentures rather than repeated treatment for natural teeth. People were thus themselves suggesting that there is an element of choice about having dentures in quite a high proportion of cases. There was no evidence that this element of choice was thought to be more common for one sex than the other.

We have seen that the reasons attributed to why the sexes might lose their teeth first were different, and we next investigate whether men and women themselves gave different reasons for why the sexes might lose their teeth first (Table 16.7).

Table 16.7
REASONS GIVEN AS TO WHY MEN OR WOMEN LOSE THEIR TEETH FIRST, BY SEX

Reasons given for earlier total tooth loss	Men who thought men lose their teeth first	Women who thought men lose their teeth first	Men who thought women lose their teeth first	Women who thought women lose their teeth first
Eating more starchy food	13%	6%	32%	38%
Drinking, smoking	35%	22%	-	1%
Child-bearing	-	-	25%	44%
Not taking care of teeth	36%	32%	4%	7%
Preferring dentures if have any trouble with teeth	11%	20%	14%	13%
Don't know why	14%	23%	22%	16%
BASES	290	138	229	413

Base numbers re-weighted.

For those who thought men lose all their teeth first (the first two columns of Table 16.7) there were some differences between the explanation given by men and the explanation given by women. Both sexes said that men did not look after their teeth, and this was given most frequently as the reason for earlier loss. Apart from that, men were more likely than women to say that it was drinking, smoking and eating that were responsible, and women were more likely than men to put it down to a preference for dentures rather than repeated dental treatment, or to say that they did not know the reason.

Among those who thought that women lose their teeth first (the third and fourth columns of the table) there was only one divergence between the sexes as to the reason why; 25% of the men who said women lose their teeth first thought this was

because of child-bearing, whereas among women who thought that women lose their teeth first 44% said the reason was child-bearing.

Since the reasons attributed to the cause of earlier total tooth loss are so different for the sexes, we continue in greater detail but firstly talk only about earlier tooth loss for men (Table 16.8) and then earlier tooth loss for women (Table 16.9).

Men and women who themselves had already lost all their natural teeth were much more likely to attribute earlier loss of teeth in men to drinking and smoking, or to not taking care of the teeth, than were dentate men and women. It is not possible to say whether this difference is the result of hindsight or rationalisation after the event of total tooth loss, or whether the edentulous, being older in general, are reflecting their knowledge of life as it was for their generation, a life style which may have changed for subsequent generations.

When we examined the reasons given by dentate adults according to their dental attendance pattern (the second section of Table 16.8) women who were regular attenders gave smoking and drinking as a reason less often than other groups, but put more emphasis on men preferring dentures rather than having repeated treatment. Women who only attend the dentist when they have trouble with their teeth attributed earlier male tooth loss to men's drinking and smoking habits. The men's reasons for earlier male tooth loss showed no variation with attendance pattern.

As far as social class was concerned men of social class III manual or IV or V were more likely than men of social class I, II or III non-manual to give drinking and smoking as reasons for earlier tooth loss. Social class IV and V men were less likely than other men to say that lack of taking care of teeth was a contributory factor to earlier total tooth loss among men. There was no systematic variation among women of different social classes.

Among men who thought there was an earlier male tooth loss there was a systematic variation with age in that for each successively older age group a higher proportion stated that drinking and smoking, or not taking care of the teeth were responsible for their earlier loss. The range of variation was from 14% of those aged 16-24 who thought that drinking and smoking made a difference, to 56% of those aged 55 and over who thought so. In terms of not taking care of teeth 26% of those aged 16-24 gave this as a reason, the proportion going to 45% among those aged 55 and over.

The number of women saying that men lose their teeth first was fairly small and could not be subdivided into so many age groups but we examined separately the attitudes of women aged 16-34, 35-54 and those aged 55 and over. Compared with the younger women a much higher proportion of the oldest group gave drinking and smoking as a reason for earlier tooth loss in men. The younger women and older women also differed as to the proportion who thought that men preferred to have dentures rather than repeated treatment for natural teeth, and it was the younger women who were more likely to hold this view, 29% of women aged 16-34 giving this reason compared with only 8% of women aged 55 and over.

Table 16.8

REASONS GIVEN, BY DIFFERENT PEOPLE, AS TO WHY MEN LOSE THEIR TEETH FIRST

People who thought men lose all their natural teeth first		Reasons for earlier total tooth loss among men					
		Eating more starchy foods	Drinking, smoking	Not taking care of teeth	Preferring dentures if have any trouble with teeth	Don't know why	BASES
Edentulous men		12%	54%	56%	12%	11%	130
Edentulous women		7%	40%	47%	13%	18%	45
Dentate men		14%	20%	20%	9%	17%	160
Dentate women		5%	12%	25%	23%	26%	92
Dentate men	Regular attenders	16%	16%	23%	11%	16%	44
	Only when have trouble	13%	17%	21%	9%	18%	98
Dentate women	Regular attenders	7%	5%	29%	34%	17%	41
	Only when have trouble	3%	24%	15%	9%	38%	34
Men	S.C. I, II & III non-manual	11%	19%	39%	11%	17%	64
	S.C. III manual	12%	39%	42%	8%	13%	139
	S.C. IV & V	15%	42%	27%	13%	13%	71
Women	S.C. I, II & III non-manual	12%	21%	26%	19%	23%	43
	S.C. III manual	2%	16%	37%	22%	27%	49
	S.C. IV & V	7%	30%	23%	20%	20%	30
Men	16-24	20%	14%	26%	4%	16%	50
	25-34	4%	22%	30%	13%	19%	54
	35-44	14%	33%	31%	12%	8%	51
	45-54	22%	37%	43%	10%	22%	51
	55 and over	11%	56%	45%	12%	10%	84
Women	16-34	5%	10%	27%	29%	21%	62
	35-54	5%	18%	36%	15%	28%	39
	55 and over	8%	47%	36%	8%	19%	36

Base numbers re-weighted.

Table 16.9 shows for those people who thought that women lose their teeth first whether the reasons they gave varied with other characteristics such as dental status, attendance pattern, social class and age. First we look at the reasons for earlier tooth loss given by those who had already lost all their own natural teeth and compare these with the views of those who had not yet experienced full clearance. Edentulous adults who thought women generally lose their teeth first were more likely than their dentate counterparts to give preference for dentures rather than repeated dental treatment as the reason for earlier loss. They were also more likely than dentate adults to say that women lose their teeth sooner than men through lack of dental care, although this reason was nowhere as frequently mentioned for women as it was for men (see Table 16.8).

As far as child-bearing was concerned about a quarter of men, whatever their dental state, said this was why women lose their teeth sooner than men, whereas 39% of edentulous women and 50% of dentate women gave this as one of the reasons for earlier loss. It is of considerable interest that fewer of the edentulous women gave child-bearing as a reason than was the case among dentate women. Dental status is highly associated with age and we come back to this point when we consider age itself.

Women of different attendance patterns and men of different attendance patterns did not differ significantly in the reasons they gave for the earlier loss of teeth among women.

The next characteristic we examined was social class. Women in Social Class IV and V gave child-bearing as a reason for earlier tooth loss in women less often than did women in the other social classes. The attitude towards the effect of child-bearing would therefore appear to be common among the usually better informed. There was no significant difference between the views of men of different social classes.

The most systematic and large variations in the reasons given for earlier total tooth loss among women occurred between different age groups. The variations were contained within the view that child-bearing was connected with early female tooth loss. Among the men aged 16-24 15% mentioned it as a reason, among the men aged 25-34 35% said that it was a reason, whereas among the men aged 55 and over 17% said that child-bearing was associated with earlier tooth loss in women. This variation with age in attitude towards the connection of tooth loss and child-bearing was even more marked among women who thought that in general women lose their teeth first. Among those aged 16-24 30% mentioned child-bearing as a reason, among those aged 25-34 53% said it was a reason, among those aged 35-44 63% said it was a reason, among those aged 45-54 48% gave it as a reason whereas among those aged 55 and over only 28% said this was a reason for earlier tooth loss in women.

Table 16.9

REASONS GIVEN, BY DIFFERENT PEOPLE, AS TO WHY WOMEN LOSE THEIR TEETH FIRST

People who thought women lose all their natural teeth first		Reasons for earlier total tooth loss among women					
		Eating more starchy foods	Child bearing	Not taking care of teeth	Preferring dentures if have any trouble with teeth	Don't know why	BASES
Edentulous men		43%	23%	9%	23%	16%	56
Edentulous women		40%	39%	11%	17%	14%	210
Dentate men		29%	26%	2%	11%	24%	173
Dentate women		37%	50%	2%	8%	11%	202
Dentate men	Regular attenders	29%	33%	4%	8%	17%	52
	Only when have trouble	28%	25%	2%	11%	27%	101
Dentate women	Regular attenders	37%	57%	3%	9%	10%	67
	Only when have trouble	33%	50%	2%	8%	12%	107
Men	S.C.I, II & III non-manual	25%	30%	6%	13%	23%	53
	S.C. III manual	34%	26%	2%	14%	25%	107
	S.C. IV & V	37%	18%	7%	13%	17%	60
Women	S.C.I, II & III non-manual	34%	49%	7%	12%	10%	128
	S.C. III manual	41%	51%	6%	14%	10%	146
	S.C. IV & V	41%	32%	7%	10%	17%	96
Men	16-24	28%	15%	4%	7%	33%	46
	25-34	37%	35%	-	2%	19%	43
	35-44	26%	30%	2%	12%	26%	43
	45-54	30%	28%	7%	11%	20%	46
	55 and over	38%	17%	6%	35%	15%	52
Women	16-24	40%	30%	-	5%	20%	60
	25-34	32%	53%	4%	12%	6%	77
	35-44	35%	63%	8%	11%	6%	102
	45-54	48%	48%	10%	12%	10%	58
	55 and over	40%	28%	9%	21%	20%	116

Base numbers re-weighted.

This great upsurge in the proportion of women connecting child-bearing with tooth loss occurs over the age groups where the biggest difference in total tooth loss between the sexes is evident. Among the youngest group of women (16-24) there will be a greater proportion who have not yet reached the stage in their lives of child-bearing, and it is perhaps to be expected therefore that a smaller proportion of this group give child-bearing as a reason for earlier tooth loss. The same explanation cannot be given for the lower proportion of women age 55 and over giving child-bearing as a reason for earlier tooth loss. Perhaps in this older group the child-bearing period of life is no longer of current concern or significance and did not come so readily to mind as a connecting factor between women and earlier tooth loss. An alternative suggestion is that the idea that there is a connection is one that has been built up fairly recently and was not currently in vogue when the women now aged 55 and over were losing their teeth and having their children. In fact a number of them probably lost their teeth before they had their children. We have seen in the Scottish survey and in the English survey that the proportion of people losing their teeth before the age of thirty is decreasing over time. Therefore there is now a larger concentration of the incidence of total tooth loss coinciding with child-bearing and the years thereafter. The linking of child-bearing and total tooth loss has probably been encouraged still further by the dental regulations as operated under the National Health Service. In 1948 when the National Health Service began, all dental treatment was free to the patient. When the cost became prohibitive charges to the patient were introduced but some classes of patient were nominated as priority classes who should continue to obtain free treatment, and one of these priority classes was pregnant and nursing mothers.

It is not unreasonable for the general public to interpret such a provision as being based on some direct relationship between child-bearing and dental health. If there is such a direct relationship then the survey shows that the public are learning this, especially the women of child-bearing age. Over half of the female regular attenders who thought women were more likely than men to lose their teeth first, gave child-bearing as the reason.

In general, both for those who thought men lose their teeth first and those who thought women lose their teeth first, there were two main reasons given for each sex, one which was more directly concerned with dental care (looking after the teeth for men, and eating starchy foods for women), and one which was less directly concerned with teeth and more concerned with life (drinking and smoking for men, and child-bearing for women). While men hide behind a drink or smoke screen and women believe that loss of teeth is a consequence of child-bearing it will be quite hard for dental educators to get people to change their behaviour with regard to taking care of the teeth and bad eating habits.

17 Summary of Scottish Survey Findings, Including Comparisons with England and Wales

The Scottish Adult Dental Health Survey was carried out in 1972, four years after the Adult Dental Health Survey for England and Wales. A major aim of the research was a comparison of dental health in these two parts of Great Britain, both of which provide dental treatment under the National Health Service, using the same regulations but administered separately, so the design of the later inquiry involved maintaining as much comparability with the earlier study as possible. At the same time this second survey provided the opportunity to pursue in more depth some issues that had been raised but not fully explained by the first survey and which could be anticipated to occur again in the Scottish survey.

In this chapter we draw together the main findings of the Scottish Adult Dental Health Survey, compare, where possible, the situation in Scotland and that in England and Wales, and comment where appropriate as to which additions to our understanding obtained in Scotland can probably be generalised to apply to Great Britain.

Perhaps the best single indicator of the dental state of a country is the proportion of its adult population that is edentulous. In Scotland 44% of adults aged 16 and over had lost all their natural teeth. The comparable figure for England and Wales was 37%. Among Scottish men 39% were edentulous, among Scottish women 48% had lost their natural teeth. The comparable figures in England and Wales were 33% for men and 40% for women. The prevalence of total tooth loss was thus higher in Scotland but reflected the same kind of variation with sex as in England and Wales. To test whether the differences could be accounted for merely by a difference in the age structure of the populations we compared total tooth loss for people of similar ages and the prevalence of total tooth loss in Scotland was always greater.

The earlier survey had demonstrated that within England and Wales there were marked variations in total tooth loss between the four different geographical regions, the worst region, the North, having 45% of adults edentulous, the best region, London and the South East, having only 28%. Thus Scotland as a whole is very similar to the worst region, the North, of England and Wales. Furthermore this similarity in the level of total tooth loss was found at all ages.

Because the Scottish survey, like that in England and Wales, was the first national dental inquiry, it is not easy to show to what extent conditions are improving. With but one survey to go on, the best that can be done is to compare the proportion of people who had lost all their natural teeth before the age of thirty for people aged 30-34, 35-44, 45-54 and 55-64. In Scotland 20% of the oldest group had lost all their teeth before thirty compared to 15% of those currently aged 30-34. In England and Wales, with the information collected four years earlier, the range was 11% to 5%. Here again the regions within England and Wales differed, the North having a range from 15% to 8%, London and the South East ranging from 6% to 2%.

The higher level of total tooth loss before thirty in Scotland prompted us to investigate what proportion of Scots had lost all their natural teeth before the age of twenty-five. Among the age group 55-64, 11% said they had become edentulous by the age of twenty-five. Among the adults who were currently aged 25-29 5% said they had been edentulous since the age of twenty-five. Although the prevalence of very early tooth loss was declining, total loss before twenty-five in Scotland was as high in 1972 as total loss before thirty had been in England and Wales in 1968.

Since total tooth loss is an irreversible step it is only by altering the situation among those who still have some natural teeth that the position will change. The dental future of people who still had some natural teeth at the time of the survey appeared to depend both on the dental state of their teeth and their assessment of the value of having natural teeth. Three useful indicators of the likely dental future of dentate adults were the proportion who had no restored teeth, the proportion who were regular dental attenders and the proportion who said they would prefer an aching back tooth to be filled rather than extracted.

In Scotland 20% of young dentate adults (aged 16-34) had no teeth that were filled, otherwise sound; in England and Wales the comparable figure was 15%. Examined regionally it was 22% in the North and 5% in London and the South East. One in five young dentate adults in both Scotland and the North thus have a somewhat bleak future in terms of remaining adequately reliant on natural teeth throughout adulthood since hardly any adults in Britain manage to avoid having decay. In terms of dental attendance pattern 33% of young dentate Scots said they went to the dentist regularly. This compared with 45% in England and Wales as a whole but 38% for the North and 51% for London and the South East. Again Scotland was more akin to the North.

When asked what kind of treatment they would prefer for an aching back tooth, filling or extraction, 50% of young dentate Scots said they would prefer filling; this compares with 56% preferring filling among young dentate adults in England and Wales. In the North the proportion preferring a filling was 52%, in London and the South East the proportion preferring a filling was 68%.

It is worth pursuing this point further since the preferences expressed by people of different attendance patterns were so different. In Scotland the proportion of young dentate regular attenders who said they would prefer a filling was 79%, in England and Wales it was 79%, in the North it was 81%, in London and the South East it was

82%. Thus the preferences for restorative treatment among young regular attenders did not vary throughout Great Britain. Among young dentate adults in Scotland who only go to the dentist when they have trouble, 26% said they would prefer a filling. In England and Wales, the comparable figure was 28%; the figure for the North was 25% and the figure for London and the South East was 44%. Thus in London and the South East, many more irregular attenders expressed a preference for restorative dentistry, while in both the North and Scotland, a much smaller proportion of young irregular attenders expressed a preference for restoration.

It is of particular interest to note from these comparisons that regular attenders, wherever they were, had a high preference for restoration whereas irregular attenders only had a greater level of preference for restorative treatment in the area where dental resources are most available.

The accumulated consequences of dental behaviour and attitudes are not only summarised in the figures of edentulousness with which we started this chapter but can also be seen by looking at the average number of teeth which were decayed, missing or filled among dentate adults. Since we have already shown that people with different attendance patterns are very differently motivated we present the findings separately for regular attenders and irregular attenders (those who only go when they have trouble with their teeth). We compare the treatment need and experience between Scotland, England and Wales, the North, and London and the South East.

Average number of teeth:-	Scotland	England and Wales	The North	London and the South East
REGULAR ATTENDERS				
Decayed	1.1	1.2	1.6	0.8
Missing	8.5	7.8	8.4	7.9
Filled	11.2	11.2	10.1	11.8
IRREGULAR ATTENDERS				
Decayed	3.4	3.2	3.4	2.9
Missing	12.4	12.4	12.3	12.3
Filled	3.2	3.0	2.5	4.2

Although dentate adults with different attendance patterns were in rather different dental situations, the accumulation of past treatment and the present need for treatment for decay were remarkably similar between the different areas, for people of the same attendance pattern.

The major role of caries in bringing about tooth loss is quite clear but the contribution of periodontal disease is less clear. Indeed the measurement of periodontal disease is, in itself, extremely difficult, and experience on the England and Wales survey did not solve the measurement problems. Consequently although with respect to decay the design of the two surveys was kept as similar as possible, the Scottish survey used an entirely different approach to measuring the level of periodontal involvement in the community. Instead of relying on a system of noting the presence or absence of certain conditions the Scottish approach

incorporated some measure of severity as well. The major part of the examination of the gums meant assessing each tooth present for its level of involvement with inflammation and pocketing. Recession was dealt with separately. For any individual this might mean anything from 6 to 30 or so assessments. For the analysis the score for each tooth was summed for each person and divided by the number of teeth that had been scored to give the average score for the mouth. A positive score was given for any sign of inflammation and the severity of the score rose according to the extent of the inflammation or the existence of pocketing. Only 7% of dentate adults had a zero periodontal score, that is 93% of dentate adults had at least some inflammation around one tooth. If one defined as dentally fit at the time of the survey those dentate adults who had no dental decay and no periodontal involvement only 2% of dentate adults in Scotland qualified.

Periodontal involvement at this level of prevalence has been established before in other studies. The question which is left unanswered is how serious is periodontal involvement at the early stages. The fact that inflammation is nearly universal does not necessarily, alone, indicate the importance of the periodontal condition in determining the transition from natural teeth to dentures.

Having included the early stages of periodontal involvement in one of our measures we also included in the examination an assessment of advanced periodontal involvement. The dental examiners were asked to record for each tooth present whether or not it needed extraction for periodontal reasons. The dental advisory committee defined in what circumstances a tooth needed to be extracted for periodontal reasons. Of all the 24518 teeth examined in the survey only 164 (0.7%) were classified as in need of periodontal extraction. More than twice as many teeth (1.9%) were classified as in need of extraction because of advanced decay. In fact even taken together, these reasons did not account for the majority of teeth extracted when dentures replaced natural teeth among the adults in the sample whose treatment we followed after the survey (see Chapter 10).

Although we cannot compare gum disease directly for the two surveys, information about the provision of dentures was comparable. In terms of those who had had full clearance the vast majority had been fitted with full dentures. In Scotland 97% of the edentulous had been fitted with full dentures, and in England and Wales the figure was also 97%. Not only had the vast majority been provided with dentures but most of them also wore them all day, in Scotland 82% of those provided with full dentures said they wore them all day, in England and Wales 84% said they wore them all day.

Among dentate adults in Scotland 35% had dentures that replaced some of their natural teeth, in England and Wales the proportion was 33%. Although the proportion of people was similar the pattern of denture provision was different.

	Scotland	England and Wales
	%	%
Full upper, partial lower	16	17
Full upper, no lower	26	17
Partial upper, partial lower	10	23
Partial upper, no lower	44	38
Partial upper, full lower	1	-
No upper, partial lower	2	5
No upper, full lower	1	-
	<hr/>	<hr/>
	100	100
	<hr/>	<hr/>
	410	562

A denture comprising a full upper and no lower was much more common in Scotland, a partial upper and partial lower being more common in England and Wales.

In Scotland, as in England and Wales, whether the dentures provided to replace some of the natural teeth were worn or not varied very much with whether they were partial or full dentures and for which jaw they had been provided. In both surveys, lower dentures were the ones least often worn and, in fact, the success rate for lower dentures was worse in Scotland. Only 34% of dentate adults in Scotland who had been supplied with a partial upper and partial lower denture wore them all day compared with 58% in England and Wales. It is this particular pattern of denture which we saw was, in fact, less often fitted in Scotland than in England and Wales.

In both surveys we estimated what proportion of dentate adults who had not been fitted with dentures should in their own dental interests, be fitted with them. In Scotland the proportion of dentate adults already fitted with dentures was 35% but using our survey definition of need a further 23% needed them giving a total of 58% if all the potential need had been met. In England and Wales, the 33% found to have been fitted with dentures would have been 52% if all the potential need had been met. Except for the pattern of partial dentures that had been fitted, the denture situation was very similar in the two surveys.

One aspect of the change from reliance on natural teeth to total reliance on dentures investigated in some detail in the earlier survey, was the number of teeth which were extracted on that last occasion. In England and Wales, a third of adults who had lost their teeth within the previous twenty years said they lost more than twenty teeth at full clearance. Among those who had previously had no dentures, over a half said they lost more than twenty teeth at full clearance.

When we came to look at the circumstances of total tooth loss among edentulous adults in Scotland we restricted the analysis to those who had lost their teeth within the previous five years, on the grounds that this would give us a better picture of the current situation with regard to the number of teeth lost at full clearance. In Scotland 29% of adults who lost the last of their natural teeth

within the previous five years lost more than twenty teeth, for those who had not previously had a denture of any kind 52% lost more than twenty teeth.

One cannot of course, after the event, find out what the condition of the teeth had been at the time of extraction, although it is worth noting that virtually no one in the survey had, on the survey criteria, that number of teeth classified as in need of extraction for decay or periodontal reasons. To overcome this difficulty and provide evidence of the state of teeth just prior to full clearance we asked the Scottish Home and Health Department and the Scottish Dental Estimates Board if we could trace our sample of Scottish adults through their records to see which people became edentulous within about a year after the survey fieldwork. We found twelve of our sample had had a full clearance during that time. Among these people more than half of the ones who had no previous denture experience lost more than twenty teeth at full clearance.

These twelve people each lost on average 19.0 teeth at full clearance. According to the survey examination, which had taken place not more than a year before, this 19.0 was made up, on average, of 4.7 teeth unrestorable due to decay, 1.6 in need of extraction for periodontal reasons, 2.8 that were decayed but restorable, 0.8 that were filled and decayed but restorable, 3.3 that were filled but otherwise sound, and 5.8 that were sound and untreated. None of those who went straight to full dentures with no previous denture experience had any teeth classified as in need of extraction for periodontal reasons.

In the process of estimating potential denture need, we classified 42 people in our sample as in need of full clearance, of whom 39 already had some denture experience. In the year after the survey, 12 of our sample lost all their teeth, but only three of these were among that 42. Among the other nine, there were two whom we had classified as in no need of dentures on our criteria. Generally therefore there would seem to be cause for concern about the frequency of, and the reasons for, massive full clearances.

The detailed analysis that can be found in the report on the various groups of people who had major dental treatment in that year puts into perspective the relationship between the state of dental health and personal choice in determining people's dental future. There is no doubt that a considerable proportion of patients do not value natural teeth very highly and that they obtain denture provision to suit their expectations.

Ever since the first survey we have been aware of the conflicting evidence about dental health in so far as more women than men appear to have good dental habits, and behaviour, yet more women in the younger age groups suffer total tooth loss. We obtained adults' views about whether they thought there was a difference between the sexes in this matter and if so why one sex generally lost their teeth first. We thought such questions might throw some light on the kinds of beliefs that may be making it difficult for dental health educators to make much progress in changing people's dental expectations.

About 44% of adults said they thought there was no difference between the sexes, 21% said they thought men lost their teeth first and 31% said that women did. The rest could not decide. Two main reasons were given why men lose their teeth first, firstly that they did not look after their teeth, and secondly their drinking and smoking habits. Two main, but different, reasons were given as to why women lose their teeth first, firstly child-bearing and secondly that women eat more snacks and starchy foods. If the beliefs about drinking, smoking and child-bearing are strongly held and used as justification for poor dental health, whether they have any basis or not, then the dental health educator has a difficult task ahead in bringing about even a small improvement.

The provision of dentures, and of course any form of dental treatment, can only take place if the individual presents himself for treatment. We were able to investigate how many of our sample had major dental treatment in the year after the survey and are very grateful for having had this opportunity as it provided a lot more evidence as to why total tooth loss in Britain is at the level it is. We still do not know, however, what prompted those people to present themselves for treatment at that point in time and what kept the others away.

If the aim of the dental service is to preserve natural teeth then the prevalence of total tooth loss is a measure of how far away we are from reaching that objective. The results of the surveys, both in England and Wales and in Scotland, show that for many adults (and maybe dentists also) preservation of natural teeth is not their main objective. Whatever attitudes exist on preservation the survey results have certainly shown that the high prevalence of total tooth loss in Great Britain cannot be explained solely in terms of dental disease.

APPENDIX I

PLANNING AND ORGANISING THE DENTAL EXAMINATION FOR THE SCOTTISH ADULT DENTAL HEALTH SURVEY

by D. K. Mason, A.J.W. McKendrick and D. A. Sutherland

1. Organisation
 - 1.1 Introduction
 - 1.2 Recruitment of Survey Dentists
 - 1.3 Criteria of the Dental Examination - Development
 - a) Charting the Teeth
 - b) Dental Caries and Fillings
 - c) Gum Disease
 - d) Dentures
 - e) Other Topics
 - 1.4 The Pilot Study
 - 1.5 Changes to the Criteria as a Result of the Pilot Study
 - a) Charting the Teeth
 - b) Dental Caries and Fillings
 - c) Gum Disease
 - d) Dentures
 - 1.6 The Examination Kit
 - 1.7 The Examination Team
 - 1.8 Training and Calibration of the Survey Dentists
 - 1.9 Final Arrangements
2. Results of the Calibration Study
3. Dental Documents
 - 3.1 Criteria for the Dental Examination
 - 3.2 Examination Technique
 - 3.3 The Dental Examination Chart

I. ORGANISATION

1.1 INTRODUCTION

The idea of a Scottish Adult Dental Health Survey was first discussed in July 1971. In October 1971, the first meeting took place between the Scottish Home and Health Department, the Social Survey Division of the Office of Population Censuses and Surveys and representatives of the Scottish Dental Schools. At this meeting it was decided that the survey should be a group effort between the Scottish Home and Health Department and the three Scottish Dental Schools, and that a Dental Advisory Committee be formed by representatives from each of these Dental Schools. From experience, and in view of current commitments, the approximate time and length of the survey was settled and the approximate sample size was indicated by the Social Survey Division. It was suggested to the Dental Advisory Committee that, in view of experience gained in England and Wales in 1968, improvements could be made in the criteria, and in the training and calibration of the survey dentists. A committee of advisors was established and met frequently throughout the six months prior to the actual survey under the chairmanship of the Chief Dental Officer, Scottish Home and Health Department. The following is an account of the main work of this committee.

1.2 RECRUITMENT OF THE SURVEY DENTISTS

The Social Survey Division interview staff could only work on this survey for a limited period of time and therefore a large number of dental examinations had to be carried out relatively quickly. On the basis of the Adult Dental Health Survey in England and Wales, it was estimated that 24 dentists and 4 reserves would be required. These dentists were recruited from the dental schools, local authorities and general practice. A letter from the Chief Dental Officer, Scottish Home and Health Department, was sent through the Executive Councils to every general dental practitioner. The three dental schools and the Chief Dental Officer in each local authority were also approached. Thirty-nine dentists applied and twenty-eight were selected after considering age, experience, where the dentist lived, and in which areas of Scotland he had volunteered to examine. The twenty-eight dentists and reserves finally selected came from different backgrounds. Eight were engaged, or had recently been engaged, in general practice; eight came from the school dental service; six were university employees and six worked in the hospital dental service. This meant that some of the dentists were used to examining large numbers of people in rapid succession to assess mainly caries and the need for extraction, whereas others were more used to examining one person at a time during the course of routine dental treatment in general practice or specialist hospital practice. The training course had to be designed to allow for this.

1.3 CRITERIA OF THE DENTAL EXAMINATION - DEVELOPMENT

The selection, or design of criteria for the dental examination was the most important task undertaken by the Dental Advisory Committee. The results of the survey had to be comparable with those produced from the survey in England and Wales, especially with regard to caries and its treatment, but the experience of the organisers of the earlier study suggested that some improvement might be possible in the recording of periodontal disease and denture information. Furthermore, the Dental Advisors felt that certain additional items of information could be obtained from the survey in Scotland that had not been included in the England and Wales study.

The examination chart of the Scottish survey was completely different from that used in England and Wales. The Social Survey Division stated that they would prefer a horizontal layout, to aid recording procedures, but other than a reminder that comparability with the earlier survey was essential, the development of the criteria was left entirely to the Dental Advisory Committee. The committee undertook this task by producing a set of draft criteria which, after much discussion, emerged with changes, additions and deletions as the final criteria. These are reproduced in Section 3.1 of this appendix. It was decided from the outset that each item of information would carry a positive code, ie no item was left without comment even if the observation was negative. This certainly made the examination a little longer, but it did not inconvenience the subject, and led to greater accuracy of recording. It was also decided that the chart should carry an abbreviated list of the possible codes to aid accurate interpretation and charting by the recorder.

The Dental Advisory Committee, being aware of the background of the survey dentists, considered that experience in the examination of periodontal disease and dentures would be limited. Therefore, in designing the criteria, an important factor was the amount of new material that could be taught accurately during the training course.

a) CHARTING THE TEETH

After considerable discussion, it was decided to chart all teeth using only six categories. This is a considerable reduction compared with the England and Wales Survey (1968), and was done firstly, to simplify the initial part of the examination and secondly, to reduce the time taken to chart teeth. The large majority of teeth, it was felt, could be coded as present or missing, and roots, crowns and pontics each deserved a separate code. This left teeth which were badly decayed, needing either a root treatment to remove the involved pulp, or extraction. The criteria for these teeth was "definite pulp involvement".

b) DENTAL CARIES AND FILLINGS

The teeth coded as present or with "definite pulp involvement" were then examined individually, for caries and restorations. As in the England and Wales Survey, a systematic method for examining each surface of each tooth was prescribed, as was the order in which the dentition was examined.

The question of the dental probe was considered carefully, bearing in mind the findings of epidemiologists who prefer sharp replaceable probe heads, and the need for comparability of results with the 1968 survey which used a blunt probe (0.7 mm diam.).

A decision was made in favour of the blunt probe for the following reasons :-

- i) Comparability with the England and Wales Survey would be retained.
- ii) In surveys of this nature, a probe should be used only to confirm caries, not detect it.
- iii) A blunt probe will not penetrate fissures and hence tedious discriminating between varying degrees of "stickiness" would be avoided, and the "sticky fissure" would not be recorded. This would also make the training of the survey dentists an easier task.

The criteria and coding for dental caries and restorations were initially similar to those used in the England and Wales Study.

c) GUM DISEASE

It was in this section that the Dental Advisory Committee had its greatest difficulties. They wished to improve on the periodontal measurements used in the England and Wales Survey of 1968, and to obtain as concise results as possible for the Scottish population, but recognised the severe difficulties in training and calibrating survey dentists to use specialist periodontal health indices. Also to be decided, was whether or not to prescribe the use of a periodontal measuring probe. To avoid the non-quantified and highly subjective system of +, ++, and +++, and the limited "yes/no" observation it was decided to use a periodontal index, and adjust as necessary to aid the training and calibration of the examiners. It should be pointed out that at this stage the Dental Advisory Committee considered that comparability with periodontal health reports from world sources was more important than comparability with England and Wales where the results for gum disease had not been particularly informative. The Committee eliminated gingival indices as being unsatisfactory for an adult survey, and finally selected the Periodontal Index of Russell (1956) for discussion. This emphasised the problem of the periodontal probe. This index, in its original form does not allow the use of a periodontal probe, although large surveys have been conducted where the probe was used. Initially it was decided not to use the probe. Criteria for two further periodontal examinations were included at this stage, namely recession and the need for extraction because of periodontal disease. Recording the presence of recession depended on measuring the distance between the gingival crest and the amelocemental junction, and it was initially for this reason, that a graduated periodontal probe was included in the kit. The need for extraction was linked to the codes allocated to the tooth for Recession and Periodontal Index, allied to an assessment of mobility.

At this stage in the planning, it was decided to include a measurement of oral hygiene to complement the information obtained from the periodontal measurements. The value of full mouth or partial mouth recording was discussed but when training and calibration were considered a partial mouth recording seemed most suitable. The simplified Oral Hygiene Index of Greene and Vermillion (1964) was selected and the criteria for both Debris and Calculus elements of the Index were added to the

instructions and the conventional recording boxes added to the chart. This was a departure from, and an expansion of the England and Wales Study, but further thought had to be given to training dentists to use this index satisfactorily.

d) DENTURES

It was obvious that full, quantitative investigation of all parameters related to dentures was out of the question owing to the time available for examination and the experience of the survey dentists. It was decided to opt for a clear definition and ask the examiners for a "yes/no" response. The denture was examined firstly for cleanliness and state of repair. Initially an attempt was made to assess vertical dimension but this was rejected, as being too difficult to define suitably for training purposes. The soft tissues were then examined for ulceration, hyperplasia and colour. The scope of this denture examination is similar to that used in 1968 in England and Wales. It was decided, in view of the increased emphasis on periodontal examination in this study, that it would be of value to relate the design of partial denture bases to the Periodontal Index. To this end a standard mouth chart was included on the form, and a set of criteria and instructions was drawn up so that the design of partial dentures could be drawn on the chart. This included the replacement of teeth, the design of the base, site of flanges, clasps, and occlusal rests. The material of all dentures was also recorded. The Advisory Committee considered carefully the best method of assessing the fit of dentures in the mouth and, in the case of full dentures, of assessing occlusal contact. The criteria used to assess fit in the 1968 Survey were discussed in detail, and it was decided that the scope of this category was satisfactory but that it would be better to place the three items of retention, movement, and occlusion in separate categories. The last category involved difficulties in defining "satisfactory occlusion". It was eventually decided that even contact between upper and lower posterior tooth units, bilaterally, was a reasonable definition of a satisfactory occlusion.

e) OTHER TOPICS

Initially an attempt was made to include a full mouth estimation of "spacing" and "crowding". This was rejected because of lack of space on the chart.

The section on Dento-Facial Anomalies was omitted from the Scottish Survey Criteria, since it was felt that considerable expansion of the criteria was needed and that this would prolong the examination unduly.

Three new measurements were added. These were the assessment of "natural tooth contact in occlusion", measurement of "overjet", and of "overbite". For the last two items a specially designed steel ruler was included in the kit. These new items were included to obtain some idea of the functional state of adult occlusions.

A full set of tentative criteria had now been designed.

1.4 THE PILOT STUDY

Three dental epidemiologists, two of whom were members of the Dental Advisory Committee undertook a Pilot Study in the field in February 1972. This was preceded by a short calibration period in Glasgow Dental Hospital and School, using volunteer patients. During the pilot study, the examiners studied the ease of application of the criteria, and made notes of difficult or vague points. They also considered the whole format of the examination, including the kit, its preparation, handwashing, and the attitude of the subject; the problems that arose from working with recorders with no experience of dental charting; the problems produced by the radically different environment of the dental examination.

As a result of the pilot study several changes were made in the criteria.

1.5 CHANGES TO THE CRITERIA AS A RESULT OF THE PILOT STUDY

a) CHARTING THE TEETH

Several guide lines were added to the criteria to help examiners determine the correct designation of a tooth in the molar area where there were spaces present. The code 'U' was restricted to teeth showing some enamel remnants. Absence of enamel indicated code 'R'. A note was added restricting the coding of crowns to full crowns only. Three quarter crowns were charted as "tooth present" and subsequently coded as fillings.

b) DENTAL CARIES AND FILLINGS

After the pilot study, the criteria for "decay present" were expanded. Originally there had been two categories, pit and fissure surfaces, and smooth surfaces, with identical instructions for recognising caries under each heading. The pit and fissure surfaces' criteria were not altered, but the smooth surfaces were further split into two groups, buccal and lingual including exposed dentine and interproximal surfaces. The pilot study examiners further recommended that anterior and posterior teeth should have separate criteria under "interproximal surfaces". This was accepted by the Dental Advisory Committee. The instruction to apply the criteria for "sound tooth" where doubt existed, was emphasised and other notes regarding the use of the probe, the extension of fillings, and recurrent caries were added to aid interpretation.

c) GUM DISEASE

In the measurement of oral hygiene and calculus, the original criteria were not altered after the pilot study, but several notes were added. The more important of these concerned the choice of alternate teeth should the designated one be missing, and the method of using the probe. To exclude false measurement, it was decided to avoid measuring in the interproximal area, and to clarify this two small sketches were included showing the area to be examined.

Periodontal disease was recorded in the order "recession", "periodontal index", and "need for extraction". During the pilot study it was found that some

difficulty occurred in seeing the critical 3 mm gradation on the probe when measuring recession, so all probes used in the study were painted yellow up to this mark.

In order to clarify the limits of the gingivae belonging to each tooth, especially where there were adjacent teeth, a sketch was added to the criteria prior to the score descriptions. From the experience of the pilot study, the Dental Advisory Committee agreed to make substantial alterations to the original Periodontal Index. The principal change was a decision to use a probe, since the pilot study examiners felt that considerable experience as a periodontal examiner was necessary to apply accurately the original criteria. Instructions were added to the criteria indicating where the probe should be used and the method of application. The original criteria for codes 6 and 8 were altered to include use of the probe, and the critical pocket depth measurement was established at 3 mm. The probe was only to be used where there was a previously recognised gingivitis. To this end, and to aid the application of Codes 0, 1, and 2, a concise definition of "gingivitis" was established and added to the criteria.

"Extraction for periodontal reasons" was left unaltered, as were "occlusion", "overjet" and "overbite".

d) DENTURES

All subjects with dentures had originally been asked to remove their denture(s), and it was therefore decided to re-arrange the order of denture examination, so that the soft tissues were examined first. Gingival inflammation related to a partial denture base, previously recorded under "gingivitis" was also to be coded positively under "mucosa inflammation".

The denture was then examined for cleanliness and the criteria were altered to specify "fitting surface only". The drawing of the design of partial dentures was found to be satisfactory on the pilot study but the instructions were expanded and example sketches were added. The pilot study examiners found few problems with assessing whether a denture remained seated on opening, but in assessing the ability of a denture base to move on the mucosa, it was decided to restrict this to horizontal movements of over $\frac{1}{4}$ " only. It had been found that rocking movements of the baseplate were difficult to assess. The criteria for full denture occlusion were adjusted to allow more rigid application. In assessing whether the posterior teeth met evenly, the bases would have to be held on the mucosa to avoid false positive observations due to tilting of one or both dentures. To aid the survey dentists the negative response criteria were explained in greater detail.

At this stage the Dental Advisory Committee considered the criteria for the dental examination to be satisfactory, and they were prepared for distribution to the survey dentists. The details of the chart were finished. A guide to the examination technique, giving examples of usage and coding, was prepared and issued with the criteria as complementary instructions. The criteria and the guide are reproduced in Section 3 of the appendix.

1.6 THE EXAMINATION KIT

Several changes were made to the composition of the examination kit used in the England and Wales study. The most important change concerned the dentist and handwashing. The pilot study examiners had carried a towel and asked to use a sink or wash basin in each house. This occasionally proved to be embarrassing to the dentist, interviewer and subject, and thus, after some experimentation with various products, a sponge in a sealable plastic container and a concentrated solution of Savlon were added to the kit. The dentists would prepare this sponge daily.

It was found on the pilot study that preparation of the dental instruments in a house took some time and might upset the subject, and that accidental spillage of the antiseptic (Hibitane) solution was possible. Therefore, it was decided that the interviewer could inform the dentist of the dental status of the subject, so that the relevant instruments could then be prepared before entering the house, and placed in a paper bag of the type used by sterile supply departments. A supply of paper bags was included and paper towels were used to dry instruments.

The headlamps used by the dentists were borrowed from the organisers of the previous study and were slightly altered to allow better adjustment. The caries probes were ordered and when delivered were checked to ensure that the tips were all 0.7 mm diameter. The periodontal graduated probes were altered as follows. The first 3 mm of each probe was etched in nitric acid and then dipped in yellow enamel paint. This was baked dry, and a second coat added. Each probe was then checked to ensure that the yellow coating was not excessively bulky and that it ceased accurately at the 3 mm mark. The short steel rulers for measuring overjet and overbite were supplied by a member of the Dental Advisory Committee. Each kit was packed in a small fibre case, and extra supplies of consumable material were arranged. An aide-memoire concerning the criteria was also supplied in the case, as were details of the Savlon and the Hibitane sterilizing solutions. An illustrated tutorial on the use of the kit was prepared for the training session.

1.7 THE EXAMINATION TEAM

Three weeks before the Training and Calibration course commenced, the survey dentists received copies of the criteria for the dental examination, and several other documents. This allowed a period of prior study. At this time, in association with the Social Survey Division, the allocation of a dentist and interviewers to each field work area was carried out. This was a considerable logistic task involving consideration of size of area, economy of dentist and interviewer manpower, availability of interviewers (especially those with cars) and the expressed willingness of the survey dentists to go to the Highlands. The whole situation was studied in depth even to the extent of deciding to send female dentists to the Islands where the presence of a male stranger in the company of several female strangers could have caused comment.

At this stage a headquarters was necessary and since Glasgow Dental Hospital and School was agreed by the Dental Advisory Committee to be the most suitable place to hold the training course, an office was established in this hospital. The day to day running of the survey was carried out from this office by Social Survey staff and a member of the Dental Advisory Committee.

1.8 TRAINING AND CALIBRATION OF THE SURVEY DENTISTS

The Dental Advisory Committee agreed that the three examiners who completed the pilot study should be responsible for training the survey dentists. In view of the amount of work involved, the training of the dentists could well have been carried out over several weeks, but many factors indicated that three days was the optimum period. Thus the week immediately prior to the field period was allocated as the training week, with the last two days of this week being used for the calibration of the dentists. The Dental Advisory Committee prepared a timetable for this week.

The success of such a training course depends on a supply of volunteer subjects. It had been decided, at an earlier stage of planning, that these volunteers must be as representative of the subjects likely to be encountered in the main survey as possible. After considerable discussion it was decided that the best source of volunteers was from the patients presenting themselves for treatment at Glasgow Dental Hospital, despite the fact that this would mean an unavoidable degree of selectivity. It was decided to appoint volunteers in advance so that necessary acute treatment would have been undertaken by the time the person appeared as a subject for examination. Leaflets explaining why help was required, and appointment cards, were printed and members of the headquarters staff were established at the main reception office in Glasgow Dental Hospital three weeks before the training session. Every patient was given a leaflet to read and was given the opportunity to volunteer. In doing so, a patient was asked if he had dentures or not, and was given a suitable appointment. Letters were sent to each subject one week prior to the study, reminding them of their appointment and asking them to inform the Survey office by 'phone if they could not keep their appointment. During the week of the training and calibration, when subjects failed to attend, places were filled by recruits from that day's patients or their friends, or by non-professional members of Glasgow Dental Hospital staff. Ensuring a full number of volunteers each day was the most difficult part of this exercise. Overall more than 100 volunteers were recruited during this period. It had been decided earlier to pay a small fee to each volunteer subject at the training course to cover travelling expenses. This gesture was much appreciated by the volunteer subjects, and greatly facilitated their recruitment.

During the training session, which lasted for three days, the survey dentists worked in threes, alternately examining, recording (to ensure familiarity with the interviewer's task) and observing. The dentists were introduced to their interviewers on the third day.

For the purpose of training, the dental chart was divided into four sections as follows :

- 1) Presence or absence of teeth, fillings, and decay.
- 2) Dentures.
- 3) Periodontal Score; Recession, the need for "Periodontal" extraction.
- 4) Debris, Calculus, Occlusion; the measurement of Overjet and Overbite.

Training in each of these sections began with a short lecture given by one of the three supervisors, explaining the criteria and methods. Meanwhile the other

supervisors examined the subjects to produce a master chart for each. The survey dentists then completed the required partial examination on each of the subjects in the examination room, where household conditions had been reproduced. Each completed chart was compared with the master by the Social Survey Division staff who were present in the examination room. By this method, it became obvious as each session progressed, which dentists needed advice from the supervisor in charge of that session because of under-scoring or over-scoring. By the end of the second day, every item of the examination had been covered and on the morning of the third day, instead of a lecture, one of the supervisors demonstrated the complete examination technique on a volunteer. Meanwhile, master charts were being prepared of the complete examination of a group of volunteers. The examination team then performed complete examinations. On the afternoon of the third day a second periodontal training session was carried out, it having been correctly anticipated that this would be necessary.

Throughout these three days the time available for each examination had been strictly limited by the supervisors in order to encourage prompt application of the criteria by the dentists, encourage speed, and allow adherence to the timetables.

The calibration was undertaken on the fourth and fifth days, and for this purpose the dentists were split into two groups, one group being calibrated on each day. Each group contained one of the three supervisors; the third supervisor, who was not a field examiner, was in overall control. Each dentist worked with an interviewer. If it was possible, each dentist was allocated his own interviewer for this exercise, but the interviewers were being briefed in four separate sessions, and this was not always possible. During, and after, each calibration session the results were calculated and the dental supervisors and Social Survey Division staff decided which, if any, dentists needed retraining after the two calibration sessions. It was gratifying that only a few dentists needed extra training. The results of the calibration are presented in Section 2 of this appendix.

1.9 FINAL ARRANGEMENTS

The examination kits were issued to the survey dentists and a short lecture on its preparation and use was presented. Before commencing the fieldwork, arrangements were made for dentists to meet those of their interviewers who had been briefed at an earlier session. A special survey 'phone number allowed both interviewer and dentist to call the Headquarter Office with any question or problem from any part of Scotland and it was extensively used throughout the field period.

The value of having a dental advisor in the Survey Office was well proven, both in relation to helping the dental field staff, and to aiding the Social Survey Division staff interpret and code remarks made by the dentists on the completed forms.

The fieldwork period began immediately after the training and calibration, and the survey dentists and their teams of interviewers were fully deployed in the sample areas in the Main part of Scotland. This continued for eight weeks until, on a predetermined day, eleven survey dentists and their interviewers were re-allocated to the Highlands and Islands sample areas. The remaining dentists including the

reserves, completed the outstanding business in the main sample area. This required considerable flexibility of dentist and interviewer availability.

On the last day of the fieldwork period, all but 2 of the survey dentists returned to Glasgow Dental Hospital for a one-day recalibration period which was undertaken in a similar way to the calibration study.

2. RESULTS OF THE CALIBRATION STUDY

A total of 40 volunteer subjects were used for the calibration course, 20 on the first day and 20 on the second. They included some people with natural teeth only, some with partial dentures, and some with no natural teeth. Although these volunteer subjects did not necessarily reflect the proportions in which these dental states would be found in the general population, they did show a fair range of dental conditions and the dentists were able to observe positive conditions of both tooth decay and gum disease. In theory each of these 40 subjects would have received 14 examinations on one or other of the two days. However, because of the time this would have taken and the considerable amount of strain involved for the patient, it was decided to confine the involvement of any patient to a series of part examinations. For this purpose the dental examination was divided into three parts, "surfaces", "gums", and "dentures" and on each of the two calibration days three groups of volunteer subjects were formed accordingly. Those in the first group were examined for existence of teeth and the surface conditions of teeth. Those in the second group were examined for debris and calculus on teeth, the gum conditions (recession of gums, periodontal score and periodontal extraction), occlusion of teeth, and overjet and overbite of teeth. The subjects in the third group received that part of the examination dealing with dentures and associated mouth conditions. Thus apart from the edentulous (who received the full examination appropriate to them, their examination being only a short one), the volunteer subjects received only part of the examination which they would have received had they been examined in the field.

On each of the two calibration days, five subjects were examined on the part of the examination relating to the conditions of the tooth surfaces, each person being examined by all of the dentists working on that particular day. The second group of subjects were examined for that part of the examination relating to the condition of the gums; but this would have involved a considerable amount of strain had each subject been examined by 14 dentists in succession, and so it was decided to halve the number of examinations which each volunteer received. On each of the two calibration days the group of "gum" patients was divided into two sub-groups, each volunteer then having 7 examinations.

In all, 28 dentists were trained and calibrated for this survey; some of these were reserve examiners and figures in the following tables, which show the amount of variation which occurred between dentists in measurements made in the dental examination, refer only to those dentists who subsequently worked on the survey. Table 1 shows the amount of variation in the number of teeth found in the different conditions. Very little variation occurred between dentists in the numbers of missing teeth and the numbers of filled but otherwise sound teeth. However, there was more variation when assessing decayed teeth. The coefficient of variation for

decay is, however, lower than was experienced on the England and Wales study. One would hope that experience and training made some contribution to this, but one must not ignore the fact that the subjects in Scotland had much more decay. The English study used dental students as subjects which probably resulted in a much larger number of borderline decisions than was met in the Scottish situation.

Table 1
EXAMINER VARIABILITY PRIOR TO FIELDWORK

	Missing	Total filled	Filled, otherwise sound	Filled and decayed	Decayed not prev. treated	Total decayed	Total surfaces decayed
5 Subjects, examined by dentists 1 - 13							
Mean	40.1	23.9	19.6	4.2	15.6	19.9	37.9
Variance	0.1	3.2	3.7	4.2	39.0	50.0	99.0
Standard dev.	0.3	1.8	1.9	2.0	6.2	7.1	10.0
Coefficient of variation*	0.01	0.08	0.10	0.48	0.40	0.36	0.26
5 Subjects, examined by dentists 14 - 26							
Mean	34.8	35.9	34.0	1.9	11.4	13.3	18.4
Variance	1.1	0.7	1.4	0.9	17.2	26.1	62.5
Standard dev.	1.1	0.8	1.2	1.0	4.1	5.2	7.9
Coefficient of variation*	0.03	0.02	0.04	0.50	0.36	0.39	0.43

*Coefficient of variation = $\frac{\text{standard deviation}}{\text{mean}}$

As an additional check on dentist variation the examiners were asked to return at the end of the fieldwork period to undertake a similar calibration test (24 of the 26 dentists took part in this re-calibration).

Table 2
EXAMINER VARIABILITY AFTER FIELDWORK

	Missing	Total filled	Filled, otherwise sound	Filled and decayed	Decayed not prev. treated	Total decayed	Total surfaces decayed
5 Subjects, examined by dentists 1 - 12							
Mean	35.0	39.4	37.5	1.9	6.2	8.1	10.3
Variance	0.0	0.9	2.3	1.6	10.6	11.4	12.0
Standard dev.	0.0	1.0	1.5	1.3	3.3	3.4	3.5
Coefficient of variation	0.00	0.02	0.04	0.66	0.53	0.42	0.34
5 Subjects, examined by dentists 14 - 25							
Mean	36.4	33.7	30.4	3.3	7.0	10.3	23.0
Variance	0.2	0.4	1.2	1.7	2.5	5.9	14.7
Standard dev.	0.5	0.6	1.1	1.3	1.6	2.4	3.8
Coefficient of variation	0.01	0.02	0.04	0.40	0.23	0.24	0.17

*Coefficient of variation = $\frac{\text{standard deviation}}{\text{mean}}$

Table 2 shows the results of the measurements of variation for decay and its treatment on this second test. There were slight changes in the level of variability but the overall effect was that where the variation had been small prior to the fieldwork it remained small; and where the variation had been greater it remained greater. There was thus no evidence of major shifts in standards occurring over the fieldwork period.

For the variation in the measurements relating to gum conditions, overjet, overbite and occlusion we present the results just for the re-calibration sessions. At the first calibration session we discovered, the hard way, that our intricate plan for resting the 'gum' volunteers for every alternate examination meant that they needed to be sitting at even intervals among the other subjects, so that one sub-set of dentists all examined one set of 7 'gum' volunteers, while the others all examined the second set of 7 volunteers. Unfortunately, in the first test session they were at odd intervals among the other subjects and no two dentists examined the same seven 'gum' volunteers. In the second test session, and at the re-calibration this was corrected but the first session results on gum condition could not be salvaged. We looked at the calibration results of the second session dentists and the variations were of the same order of magnitude as the re-calibration results for that group. We therefore presume there was no major change in assessment during the fieldwork for either group of dentists and confine our presentation to the results of the re-calibration sessions which are available for all dentists.

Table 3
EXAMINER VARIABILITY AFTER FIELDWORK

	Debris score	Calculus score	Periodontal score	Overjet	Overbite	Lower teeth in occlusion
5 Subjects, examined by dentists 1 - 12						
Mean	9.1	21.3	148.4	20.2	15.8	48.0
Variance	30.9	144.7	2199.7	5.1	4.0	0.5
Standard dev.	5.6	12.0	46.9	2.2	2.0	0.7
Coefficient of variation*	0.61	0.56	0.32	0.11	0.13	0.02
5 Subjects, examined by dentists 14 - 25						
Mean	5.8	6.0	72.8	12.3	16.8	44.2
Variance	16.0	39.7	875.5	3.4	3.4	18.5
Standard dev.	4.0	6.3	29.6	1.9	1.9	4.3
Coefficient of variation*	0.70	1.05	0.41	0.15	0.11	0.10

*Coefficient of variation = $\frac{\text{standard deviation}}{\text{mean}}$

Table 3 shows that the amount of variation between dentists in the numbers of lower teeth they found to be in occlusion was very small indeed. Measurements of overjet and overbite of teeth also showed little variation although these figures were based on only a small number of observations and should therefore be interpreted with caution. So little recession of gums and the need for extraction of teeth for periodontal reasons was found that dentist variation could not reasonably be presented. Measurements of periodontal score on the gums showed a fair amount of variation and a considerable amount of variation also occurred between

dentists for measurements of debris and calculus. It must be remembered, however, that measurements of periodontal score and debris are fairly difficult to make repeatedly on one subject over a short space of time (as was done in the calibration exercise) and obtain the same value for the measurement each time. Any inflammation of the gums may be aggravated by probing so that in effect subsequent dentists are scoring higher on this measurement than previous dentists for the particular subject. Debris may be dislodged by probing so that debris observed by the first dentist to examine that subject may not be present on the teeth when the subject is examined by subsequent dentists. This difficulty of measurement may have contributed partly to the variation observed in periodontal score and debris score.

Only a few subjects with dentures were examined by the dentists, too few to attempt any calculation of the variation. From looking at the data, however, it seemed that the denture information about which there was most variability was, as might be expected, the fit of the denture in the mouth, especially the lower denture.

The results of the calibration and re-calibration exercises show that even with a training course, the purpose of which is to reduce dentist variation to a minimum, a certain amount of variation still exists, this variation being greater for some measurements than for others.

3. DENTAL DOCUMENTS

3.1 CRITERIA FOR THE DENTAL EXAMINATION

The Criteria should be studied in conjunction with the examination form. Name, Date of Birth, Sex, Serial Number and dental status will be completed by the interviewer before entering the house.

EXISTENCE OF TOOTH

Every tooth shown on the chart should be given one of the following codes (ie code all 32 teeth) :

- P - Present
- M - Missing
- U - Broken down tooth and definite pulp involvement
- R - Root only
- CR - Crown
- B - Pontic or bridge

Notes:

1) *Codes P and M* The use of these codes in the molar areas (where the true designation of a tooth may be in doubt) needs some clarification. To deduce whether a single molar is a first, second, or third molar, or two molars are first and second, first and third, or second and third, the following may help :

- a) Estimate gap sizes, allowing for drifting.
- b) Look behind last standing tooth. Could there have been another tooth there?
- c) Look at tissue in spaces. Is it heaped up indicating considerable closure of this space already?
- d) Examine form of tooth, eg In the upper jaw, third molars are smaller and have a less well defined cusp pattern.
- e) Look at other quadrants.
- f) Ask patient about loss of molars.

2) *Codes U and R* If there is evidence of part of the crown wall, ie enamel, then the code is U. If no sign of enamel then the code is R.

3) *Code CR* This is FULL crown. Three-quarter crowns are coded as fillings. In this case use code P.

SURFACES

Code for each surface in order, mesial, occlusal, distal, lingual and buccal.

- 0 - Sound - none of the criteria under X are applicable, and the surface is not filled.
- A - Restored with amalgam
- G - Restored with gold
- S - Restored with silicate or acrylic
- X - Decay present

PIT AND FISSURE SURFACES

- i) visual impression of caries.
- ii) If in doubt, confirm by using caries probe.
- iii) the probe should enter the lesion and resistance to withdrawal should be felt.

BUCCAL AND LINGUAL SMOOTH SURFACES (Including exposed dentine)

- i) visual impression of caries
- ii) If in doubt, confirm by using caries probe.
- iii) the probe should enter the lesion and resistance to withdrawal should be felt.

INTERPROXIMAL SURFACES

- i) for posterior teeth either a breakdown of marginal ridge or shadow under marginal ridge, scored only if confirmed by probe entering cavity.
- ii) for anterior teeth, either a breakdown of labial and/or lingual surface or definite shadow seen when viewed by transmitted light.

Notes:

- 1) *Codes A, G and S* Can be multicode with X.
 - a) Where a filling from one surface encroaches on another, eg an occlusal filling with buccal or lingual extensions, then the filling is charted as being present on all surfaces on to which it extends.
 - b) Chipped or cracked fillings, although perhaps needing replacing do not fulfil any criteria and are not charted as caries.
 - c) New caries at the junction of a filling and the tooth is charted as code X if the criteria for code X are fulfilled, ie there is a visual impression of caries; the probe is admitted and there is resistance to withdrawal. This is multicode as filling and caries.
- 2) *CODE X*
 - a) Beware of charting a subjective opinion, eg "a filling is needed there". Always adhere to the criteria.
 - b) On smooth surfaces, do not chart as carious places where the resistance to the probe is due to edges, eg at exposed cervical margins where the enamel margin may act as a 'catch'.
 - c) Where the probe is used it should be applied and withdrawn at right angles to suspected caries.
 - d) Where in doubt apply 0 = sound.

GUMS

For the debris and calculus indices, the following teeth are scored.

$$\begin{array}{ccccc} \text{R} & 6 & 1/ & 6 & \text{L} \\ & 6 & /1 & 6 & \end{array}$$

and the surfaces are as follows :-

$$\frac{6}{6} \quad / \quad \frac{6}{6} \quad \text{buccal}$$

$$\frac{6}{6} \quad / \quad \frac{6}{6} \quad \text{lingual}$$

$$\frac{1/}{/1} \quad \text{labial}$$

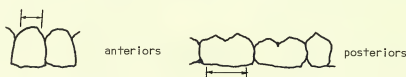
If the first molar is missing in any quadrant, use the second molar in the same quadrant, or failing that, the third molar. If there are no molars, use the second premolar, and if it is not present, ignore that quadrant, ie choice of posterior tooth for debris and calculus indices.

- (i) first molar
- (ii) second molar
- (iii) third molar
- (iv) second premolar
- (v) ignore quadrant

In the anterior part of the mouth, if either of $\frac{1/}{/1}$ is missing, use the adjacent central incisor, or failing that either lateral. $\frac{1/}{/1}$ If all incisors in one jaw are missing, ignore that area.

Where a designated tooth is missing, and a choice is made according to the two above criteria for substitution, there is no need to record this fact. Just code the tooth as per criteria.

The area of buccal, lingual or labial surface used for examination is shown below.



This is designed to exclude measurement of debris in the interproximal space.

DEBRIS

Apply the periodontal probe head to the surface of the tooth under examination so that it is parallel to the long axis of the tooth. Draw probe along the surface and estimate the amount of debris according to the criteria. The criteria for the debris index are :-

- 0 No debris or stain present.
- 1 Soft debris covering not more than one third of the tooth surface, or the presence of extrinsic stains without debris regardless of surface area covered.
- 2 Soft debris covering more than one, not more than two-thirds of the exposed tooth surface.
- 3 Soft debris covering more than two-thirds of the exposed tooth surface.

CALCULUS

Supragingival calculus is measured visually - see criteria.

Subgingival calculus : Insert the periodontal probe into the gingival sulcus and move probe mesio- distally along sulcus to determine presence or absence of subgingival calculus. If present, use probe in short, gentle, vertical movements to determine whether calculus is a continuous band, or individual flecks. The criteria for the calculus index are:-

- 0 No calculus.
- 1 Supragingival calculus covering not more than one-third of the tooth surface.
- 2 Supragingival calculus covering more than one, but not more than two-thirds of the tooth surface OR individual flecks of subgingival calculus.
- 3 Supragingival calculus covering more than two-thirds of the tooth surface OR continuous heavy band of subgingival calculus.

The measurement of the next three observations depends on the use of the periodontal probe, and in particular on the 3mm calibrated mark.

RECESSION

Code each tooth as follows:-

- 0 - No recession, or recession less than 3mm
- R - Recession of 3mm or more.

The reference point for this measurement is the enamel margin. If, at any point in the circumference of the tooth, the gingival margin is 3mm or more from the enamel margin then this tooth is coded as R.

PERIODONTAL SCORE

The following sketch shows the area which constitutes the gingival margin of a tooth. Only this area is examined for gingival inflammation.



Examine these areas only
(buccal and lingual)

Gingivitis is determined by examining for obvious changes in colour. A gingival margin is considered to be inflamed if it is markedly red, or bluish red in contrast to the colour (usually pink) of adjacent healthy tissue. Code each tooth as follows :-

- 0 - **NEGATIVE:** No part of the gingival margin fulfils the above definition.
- 1 - **MILD GINGIVITIS:** Part of the gingival margin is inflamed, but the inflammation does not circumscribe the tooth.
- 2 - **GINGIVITIS:** The gingival margin is inflamed, and the inflammation circumscribes the tooth.
- 6 - **GINGIVITIS WITH POCKET FORMATION:** The pocket is 3mm or more in depth. There is no interference with normal masticatory function, and the tooth is firm in its socket
- 8 - **ADVANCED DESTRUCTION WITH LOSS OF MASTICATORY FUNCTION:** If there is a pocket of 3mm or more, and the tooth is loose, or depressible in its socket, then the code is 8.

Note:

Pocket formation: The probe is not inserted into the sulcus unless the tooth would already be coded 1 or 2, ie pockets are only looked for where there is gingivitis already present. To avoid false measurement of pocket depth, pockets are only looked for in the areas shown below.



ie do not look for pockets in papillary area.

PERIODONTAL EXTRACTION

Code each tooth as follows :-

- 0 - Extraction not indicated for periodontal reasons.
- E - Extraction required. The tooth has a periodontal score of 8, and is mobile, or the tooth is coded R (recession) and is mobile.

Mobility is determined by holding the tooth between two fingers and exercising pressure in a labio-lingual and mesio-distal direction.

OCCLUSION

Record whether each lower tooth is in contact with upper teeth by asking the patient to close. Examine with teeth in occlusion. Code each tooth as follows :-

- 0 - No contact
- 1 - Contact

Notes:

The incisor relationship is examined with the aid of a mouth mirror held below the incisal edge of upper incisors.

Do not count a mandibular tooth as being "in contact" if that tooth is meeting only soft tissue.

When in doubt score - 0.

OVERJET

Measure distance from labial surface of mandibular central incisor to labial surface of maxillary central incisors (at the incisal edge) using the measuring device.

Record overjet in + (plus) mm.

If a negative overjet is present, record from the labial surface of the maxillary central incisors to the labial surface of the mandibular central incisors (at the incisal edge).

Up to half a millimetre should be recorded to nearest millimetre score below, half and over half a millimetre should be recorded to the next millimetre above.

Record greatest overjet when there is a difference between the position of the maxillary central incisors.

OVERBITE

Measure on mandibular central incisors the overlap of the maxillary central incisors using the measuring device.

Record overbite as + (plus) mm

If a negative reading (anterior open bite) record as - (minus) mm.

An edge to edge relationship would be recorded as 0 mm.

Up to half a millimetre should be recorded to nearest millimetre score below, half and over half a millimetre should be recorded to the next millimetre above.

If there is a difference between degree of overlap of the maxillary central incisors, record the greatest measurement.

Notes:

1) If there are insufficient teeth in the group $\frac{1}{1} / \frac{1}{1}$ to render the above criteria inoperative, then omit measurement of overjet and overbite.

2) See "Examination Technique" for instructions in use of measuring instruments.

DENTURES

The coding for dentures is as follows, except where otherwise stated:

Upper:	Yes	-	1
	No	-	0
Lower:	Yes	-	1
	No	-	0

a) *Denture Ulceration.* Ulceration is considered to mean an obvious break in the epithelium

Yes - Area(s) of ulceration in relation to periphery of fitting surface.

No -

b) *Denture Hyperplasia.*

Yes - Area(s) of hyperplastic tissue in relation to periphery of denture.

No -

There is no need to re-insert the denture to determine where periphery is sited. An area of hyperplasia will either be obvious or, if in doubt, marked "no".

The cheeks and lips should be held under tension by inserting fingers into the buccal sulci.

c) *Mucosa Inflammation.*

Yes - Any part of the denture bearing area is redder in colour, due to inflammation, than adjacent healthy tissue.

No - There is no area of redness.

Where the denture covers gingival margins, and these gingival margins are red due to inflammation, and have been coded under periodontal score, they are also scored as "yes" under this category.

d) *Oral Hygiene.*

Soft Debris; score "yes" or "no" if present on *fitting* surface.

Hard Debris; score "yes" or "no" if present on *fitting* surface.

e) *Is denture broken*

Yes - Denture base is cracked or part is broken off, or teeth are missing.

No -

f) *Is denture repaired*

Yes - Evidence of repair present

No -

g) *Is denture rebased*

Yes - The denture shows evidence of rebasing usually by the presence of a different shade of acrylic on flanges and fitting surface.

No -

h) *Is there a soft lining*

Yes - The acrylic of the fitting surface is compressible including proprietary "cushion linings".

No -

i) *Material* State whether denture base is:-

M - Metal

P - Plastic

V - Vulcanite

j) *Partial Denture Design* On the chart draw the design of partial denture.

NB When drawing the denture - look at smooth surface. ie Right side of denture will be on your left hand side.

Mark on the chart the teeth that are on the denture by filling in the appropriate space.

If one denture tooth replaces more than one natural tooth (eg a denture /6 replacing a natural /65) then shade as one block the teeth on the chart and fill up the whole space.

Draw the outline of the base showing size of plate, flanges, position of bars (if any), and how denture meets standing teeth.

There are two possibilities, as far as this survey is concerned, when charting how a denture meets standing teeth:

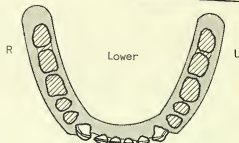
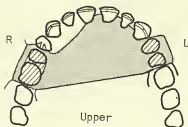
- i. the teeth are not encroached on by the plate, and the gingivae are uninvolved eg



- ii. the teeth and gingivae are covered by the plate. eg



Add in clasps and occlusal rests. eg:



- k) *Are dentures unseated on opening.* Score code for yes or no as appropriate. The denture(s) should be inserted and seated firmly in place. The subject should be asked to close, and then open. Check to see if denture(s) has become unseated.

- l) *Does base move more than $\frac{1}{4}$ " when firmly seated on the mucosa.* Score yes or no as appropriate. The denture should be seated firmly on the mucosa, and using thumb and forefinger on the most accessible part, should be tested for movement in an anterior-posterior and left-right direction. Do not examine for "rocking". This is an examination for movement on a horizontal plane. If the movement is more than a $\frac{1}{4}$ ", record as yes.

- m) *Is the occlusion satisfactory*

Yes - 1

No - 0

Yes: the dentures have a satisfactory occlusion when both dentures are firmly seated on the ridges. A satisfactory occlusion for this survey, is even contact between upper and lower posterior teeth on both sides.

No: The dentures achieve occlusion only by becoming unseated, or the posterior teeth meet on one side only, or the dentures meet only at the anterior region, there being no posterior tooth contact.

NB The dentures should be held on the ridges by pressure from the examiner's fingers.

3.2 EXAMINATION TECHNIQUE

IT IS ESSENTIAL THAT YOU FOLLOW THE FORMAT SHOWN BELOW TO AVOID MISINTERPRETATION BY THE INTERVIEWER. SHE HAS BEEN TRAINED IN A SIMILAR METHOD OF RECORDING THE EXAMINATION. PLEASE PAY SPECIAL ATTENTION TO THE WORDING GIVEN IN THE EXAMPLES QUOTED BELOW.

Ask the subject to remove any dentures that he is wearing.

EXISTENCE

Using a mirror begin the examination in the upper jaw, on the subject's left hand side. Call out the Existence code for each tooth that is, or should be, there. Quote quadrant to start with, and give tooth number throughout. eg "Existence: Upper left, 8M, 7M, 6P, 5P, 4P, 3P, 2P, 1CR, Midline 1P, etc."

Notice that when you reach the end of the first quadrant you say "midline" or "mid". This helps the interviewer to keep her place on the chart. In the case of a completely edentulous jaw, you can say eg "upper, all zero".

Never say "all zero" without qualification since the interviewer may misinterpret your findings. Thus for the case of the completely edentulous mouth you would say "upper, all zero; lower, all zero".

On completion of the Existence code *PAUSE* for the interviewer to complete her charting. You may commence again when she indicates that she is ready.

SURFACES

Using mirror and caries probe call out the Surfaces code, for the teeth present in the mouth, in the order of surfaces mesial, occlusal, distal, lingual, buccal. On the chart, anterior teeth have the occlusal surface blanked off, so these teeth have only four surfaces. There is no need to name the tooth, but you should continue to quote the quadrant identity and "midline". For emphasis you should pause slightly on each tooth before quoting codes for lingual and buccal. eg "Surfaces, Upper left:

zero, zero, X and A, (pause) A, zero.
zero, zero, zero, (pause) zero, zero.
zero, A, A, (pause) A, zero.
S, S and X, (pause) zero, zero.
zero, S, (pause) zero, zero.

Where a tooth's surfaces are all zero, you may say so, but give the interviewer time to record these observations.

Pause at the end of the upper jaw, and at the end of *SURFACES*.

Special Note: If a subject is obviously unhappy when you use a probe to confirm caries, then offer to continue the examination without the caries probe.

GUMS

Using mirror and periodontal probe, examine the six designated teeth for *Debris*, and then for *Calculus*. Pause between them. Where the designated tooth is missing, and there is no alternative (see Criteria) then say "blank".

eg "Gums, upper left, 2,1, blank, 2, zero, 2 (pause) upper left again 1, zero, blank, 1, 1, 1,".

Continue by examining for *Recession*, pausing at midline, and change of jaw.

eg "Upper left, zero, zero, R, R, zero, zero, midline etc".

PERIODONTAL SCORE

eg "Upper left, 2, 6, 1, 1, zero, 2, midline, 2, 2, etc."

PERIODONTAL EXTRACTION

In this part of the examination you are looking for mobility in teeth already coded R for recession, or code 8 under periodontal score. If there are a lot of teeth in the mouth, you may have to ask the interviewer to indicate R's and 8's for you, so that you may check mobility. In mouths with less teeth, it is probably easier to check teeth individually.

eg "Upper left, zero, zero, zero, E, E, zero etc."

OCCLUSION

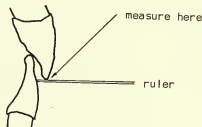
In measuring occlusion, examine lower teeth only. Use only a mirror as directed in criteria.

eg "Occlusion, lower right, zero, zero, 1, 1, 1, 1, midline, etc".

OVERJET

Using the single end of the ruler, place the end against the labial surface of I/I with the teeth closed. Read off in mm to labial surface of I/I. Quote plus or minus and measurement.

eg "Overjet, plus 4 mm."



OVERBITE

Use the double end of ruler. Place the index finger nail tip on lower incisors with nail horizontal, and touching tips of I/I. Place the thumb under the chin to stabilise your index finger. Ask the subject to open, and measure from nail to the incisal edge of I/I. Quote as for overjet.



DENTURES

These observations are less easily misinterpreted. Each item is given a letter of identification. Quote "upper" or "lower" to identify observation.

- eg "a, Upper zero, lower zero
b, upper zero, lower 1
c, upper 1, lower 1, etc.
d, Soft, upper 1, lower 1
Hard, upper zero, lower zero".

The only exceptions to this are (i) (j) and (m). In (i) quote M, P or V for each jaw.

- eg "(i), upper M, lower P"

In (m) quote only "zero" or "one"

- eg "(m), zero".

At any point in the examination, if you wish to make any comment, say "asterisk", and the interviewer will record an asterisk on the chart. After the examination, preferably in the car, write your comments on the back of the examination sheet.

Should you lose the place, ask the interviewer for the next observation required.

DENTAL EXAMINATION CHART

[illegible][illegible]

APPENDIX II

THE INTERVIEW QUESTIONNAIRES

SCOTTISH
ADULT DENTAL HEALTH

CONFIDENTIAL INTRODUCTORY QUESTIONNAIRE

Interviewer's Name Date of 1st Interview No. of calls

Auth. No. Date of Examination No. of calls

Date of the 1st examination 7
 1 o'clock but before 5 o'clock 8
 5 o'clock or later 9

Time of day for examination

Sex No. Serial No. Person No.

Age (Years) (M/F) (A/I) No. of eligible persons No. of interviewers No. of interviewers No. of interviewers

IF STILL HAS SOME NATURAL TEETH (A)

Have you ever had any partial dentures, that is false teeth on a plate? 2

still has some natural teeth A
 lost them all 3

go to GREEN Q'EE

1. Is are interested in both natural teeth and false teeth.
 Could you tell me how many of your natural teeth, or have you lost them all?

still has some natural teeth A
 lost them all 3

go to
GREEN
Q'EE

IF STILL HAS SOME NATURAL TEETH (A)

2. Have you ever had any partial dentures, that is false teeth on a plate?

has had partial dentures 2

never had partial dentures 1

go to
GREEN
Q'EE
go to
GREEN
Q'EE

SCOTTISH
ADULT DENTAL HEALTH
QUESTIONNAIRE I
PEOPLE WITH NATURAL TEETH ONLY

Area No.	Serial No.	Person No.

1. Some people have a lot of trouble with their teeth (If you were to) (a) When you are eating chocolates, or sweet things, do you get any twinges of toothache? (b) Sometimes, if there are any holes in your teeth you are not sure whether or not they are as you know are there any holes in your teeth? (c) Do you think that any of your teeth are at all loose?	Gets twinges 1 Does not 2 Holes 3 Not 4 Some loose 5 None 6
2. Apart from trouble with their teeth some people have trouble with their gums. (a) During the last week have your gums felt sore or tender at all, or not? (b) During the last week have your gums bled at all when you cleaned your teeth, or not? (c) Have you ever had any other kind of trouble with your gums, or mouth? IF YES (5) (d) What sort of trouble?	Gums sore or tender 1 Not 2 Gums bled 3 Have not 4 Yes 5 No 6

3. I'd like to ask you a few more details about your teeth, and this picture might help (HAND OVER CARD A)

People usually start off with 16 teeth at the top, and 16 at the bottom, the pattern is the same on the left, as on the right, that is three single teeth at the front for biting and five double teeth at the back for chewing.

- (a) You probably know that the very back tooth on each side, both at the top and at the bottom is called a wisdom tooth. Some people get all 4 of these at the same time and some later. Some people have them late and some people never get them at all. Which of your wisdom teeth have, at some time come through ...

... has the one at the ...
come through or not?

Come through

Not come through

DK

- If 'Come through' (A)

- (b) Have you still got
the ... wisdom tooth
or have you had it
out since?

	top left	top right	bottom left	bottom right
Come through	A	A	A	A
Not come through	3	3	3	3
DK	4	4	4	4
Still got it	1	1	1	1
Taken out	2	2	2	2

IF INFORMANT SAYS IT WAS IMPACTED AND WAS TAKEN OUT CODE 2.

OFFICE USE

UL	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8	UR
LL																	LR

--	--	--	--

- 2 -

I'd like to move on from wisdom teeth to talk about any other teeth you may have lost.

- (a) Can I start with your top teeth.
Have you lost any of your top teeth on the left hand side?
IF YES
Can you show me from the picture which ones you have lost?
MAKE A CROSS THROUGH EACH MISSING TOOTH

- (b) Have you lost any of your top teeth on the right hand side?
IF YES
Can you show me from the picture which ones you have lost?
MAKE A CROSS THROUGH EACH MISSING TOOTH

TOP TEETH							
LEFT				RIGHT			
1	2	3	4	1	2	3	4
5	6	7	8	5	6	7	8
None lost at top on left				None lost at top on right			
Tick				Tick			

BOTTOM TEETH

- 5(a) Can I now ask you about your bottom teeth. Have you lost any of your bottom teeth on the left hand side?
IF YES
Can you show me from the picture which ones you have lost?
MAKE A CROSS THROUGH EACH MISSING TOOTH

- (b) Have you lost any of your bottom teeth on the right hand side?
IF YES
Can you show me from the picture which ones you have lost?
MAKE A CROSS THROUGH EACH MISSING TOOTH

BOTTOM TEETH							
LEFT				RIGHT			
1	2	3	4	1	2	3	4
5	6	7	8	5	6	7	8
None lost at bottom on left				None lost at bottom on right			
Tick				Tick			

- 3 -

Next I would like to ask about fillings or stoppings

6 TOP TEETH

(a) Do you have any fillings in any of your top teeth on the left hand side?

Yes 1
No 2

(b) Do you have any fillings in any of your top teeth on the right hand side?

Yes 1
No 2

7 BOTTOM TEETH

(a) Do you have any fillings in any of your bottom teeth on the left hand side?

Yes 1
No 2

(b) Do you have any fillings in any of your bottom teeth on the right hand side?

Yes 1
No 2

8 IF GOT NO FILLINGS AT ALL (Q.6 and Q.7 all codes = 2)

Have you ever had any fillings or stoppings?

Has had fillings 3
Has not 4

TAKE BACK CARD A

9 TO ALL WHO HAVE HAD FILLINGS (ANY CODE 1 or CODE 3)

Have you ever had an injection to kill the pain when having a tooth filled?

Had injection 1
Not 2

10 Have you ever had an X-ray taken of any of your teeth?

Had X-ray 1
Not 2

11 Would you say that your teeth are stronger and healthier than when I first met you? About the same, or not as strong and healthy?

Stronger and healthier 1
About the same 2
Not as strong and healthy 3

** INTERVIEWER OBSERVATION

12 Would you say that the informant is very intelligent, or not very intelligent? About average or unfortunate with the way they look? (APPEARANCE)

Very fortunate 1
Intelligent 2
Unfortunate 3
Can't say 4

13(a)	If you went to the dentist with an aching back tooth would you prefer the dentist to take it out or to fill it? PROMPT AS NEEDED. "Supposing it could be filled" Fill it 1 Other (SPECIFY) 2 Other (SPECIFY) 3	1 2 3
(b)	If you went to the dentist with an aching front tooth would you prefer the dentist to take it out or to fill it? PROMPT AS NEEDED. "Supposing it could be filled" Take it out 1 Fill it 2 Other (SPECIFY) 3	1 2 3
14	If you were to lose all your back teeth, what would you prefer to do RUNNING 6 or have the rest of your teeth out 7 and have all false teeth? 8 other (SPECIFY) 9	6 7 8 9
15	A lot of people eventually have to have full dentures; do you find the thought of having all false teeth RUNNING 1 PROMPT 2 or not at all upsetting? 3	1 2 3
16(a)	In general who do you think lose all their natural teeth first, men, or women, or do you think it is the same for both? Men first 4 Women first 5 Both the same 6	4 5 6
(b)	IF MEN FIRST (4) OR WOMEN FIRST (5) Why do you think men (women) lose all their teeth first?	

17(a) If you were to go to a dentist tomorrow do you think that any of your teeth would need to be either filled or taken out or do you think no such treatment would be necessary?

Some such treatment A }
 Having treatment now B }
 None C }

Go to
(b)

IF SOME SUCH TREATMENT (A AND B)

(b) How many teeth do you think would/ do need to be either filled or taken out?

(c) (If you were to go to a dentist tomorrow) do you think you would need any other kind of treatment (apart from having teeth filled or taken out)?

ask (d)

IF YES (C)

(d) What kind of treatment?

18

Different people have different ideas as to what things help to keep teeth healthy. It's likely that you and some things people have mentioned. Can you tell me how important you consider them for keeping teeth healthy.

HAND OVER CARD B

Would you say that	FOR KEEPING TEETH HEALTHY			
	very important	fairly important	not very important	not at all important
(i) Not eating sweets is	1	2	3	4
(ii) Regular visits to the dentist are	1	2	3	4
(iii) Cleaning teeth regularly is	1	2	3	4
(iv) Having fluoride in the water is	1	2	3	4
(v) A healthy diet is	1	2	3	4

19(a) When you were a child were you encouraged to clean your teeth

ROUTING
PAGE 2

..... very much 1
 a fair amount 2
 not much 3
 or not encouraged at all 4

(b) Did you ever have your teeth looked at by a school dentist?

Looked at by school dentist 4
 Not 6

(i) Did you ever have any treatment from the school dentist?

Yes 7
 No 8

(c) Apart from the school dentist, did you see any other dentist, or go to a hospital for dental treatment, before you were 16 years old?

Yes 8
 No 4

IF YES (B)

(i) As a child, did you go to the dentist for

EXCLUDE SCHOOL DENTIST ... a regular check up 1
 an occasional check up 2
 or only when you were having trouble with your teeth 3

20 When you went to the dentist, as a child, did you ever have any unpleasant experiences?

Did not go 9
 Yes 7
 No 8

IF YES (C) What was it that made it unpleasant?

IF YES (C) What was it that made it unpleasant?

21	When you've been to the dentist, as an adult, have you ever had any unpleasant experiences?	IF YES (7) Yes 7 No 8 Have not been 9	IF MORE THAN ONE (8) What was it that made it unpleasant? UNPLEASANT EXPERIENCE	
22(a)	How often do you clean your teeth, now?	Never 0		Go to Q-25
(b)	At what time of day do you clean them?	Before breakfast 1 After breakfast 2 Morning 3 RINS ALL NIGHT 4 Tea time 5 After evening meal 6 Last thing at night 7 Other (SPECIFY) 8 IF NOTHING ETC. ASK 'IS THIS BEFORE OR AFTER BREAKFAST' AND MAKE A NOTE		
(c)	People clean their teeth in different ways, and some people wear out toothbrushes quickly and some people slowly. About how often do you have a new toothbrush?			
23	Could you pretend that you have a toothbrush in your hand; can you show me just how you use it when you clean your teeth?			
(a)	INTERVIEWER OBSERVE	Wrist movement only 1 Some wrist, some scrub 2 All scrub 3		
(b)	INTERVIEWER CHECK	Right hand used 4 Left hand used 5 Either or both 6	USUALLY	
24	Has a dentist ever demonstrated to you how best to clean your teeth? RECORD ANY COMMENTS	Yes 1 No 2		

25(a)	Have you been to the dentist since the beginning of December that's about 6 months ago?	Yes A No B	Ask (b) Ask (c)
(b)	Are you under treatment now or not?	Under treatment now 1 Not 2	Go to Q-26
(c)	Have you been to the dentist since last May (June) that's about a year ago?	Yes 3 No C	Go to Ask (d)
(d)	About how long ago was PROMPT your last visit to the IF REC. dentist?	More than 1 up to 2 years ago 4 More than 2 up to 3 years ago 5 More than 3 up to 5 years ago 6 More than 5 years ago 7 More than 7 years ago 8 Never 9	Ask (c) Go to Q-26 Go to Q-101
(e)	Was this before the new charges started on April 1st 1971 or after they had started?	Before April 1st 5 April 1st or after 4	
26	The last time you went to the dentist what made you go? Was it because you were having trouble with your teeth or for a check up, or for some other reason?	Trouble with teeth 4 Check up 5 Other (SPECIFY) 6	
27(a)	In general do you go to the dentist for a regular check up 7 an occasional check up 8 or only when you are having trouble with your teeth? 9		Ask (b) Ask (c)
(b)	Does the dentist send you a reminder when it is time to go for your next check up?	Reminder 1 Not 2	
(c)	What is the main reason for you not going for a regular check up?	IF DOES NOT GO FOR A REGULAR CHECK UP (\$8 OR 9)	
28	The last time you wanted to see a dentist how far ahead did you have to make the appointment with him, once you wanted one?		

29

When people go to the dentist for a check up, or because they've had a toothache, or for any other reason, they sometimes have to make one visit and sometimes more than one visit.

(a) The last time you went to the dentist did you make one visit or several visits?

One visit 1
Several A

IF SEVERAL (A)

(b) About how many visits did you make for that course (set) of treatment?

30 In (all) the visit(s) you made to the dentist (for that set of treatment) what did you have done?

Examination (check) 5
X-ray 6
Fillings (stoppings) 1
Extractions (teeth out) 6
Scale (clean, scrape) and polish 1
Other (SPECIFY) 0

31 Was your treatment under the National Health Service or was it private?

National Health Service 1
Private 2
Other (SPECIFY) 3

32(a) Did the dentist tell you about what treatment he was going to carry out or not?

Dentist told me A
Not 6

IF DENTIST TOLD PATIENT (A)

(b) Was what he said sufficient for you to understand what he was going to do? Would you have liked a fuller explanation of what he was going to do?

Sufficient 7
Not sufficient 8

33(a) How much did the whole treatment cost you?

Cost (SPECIFY) A
Nothing 1
D.E. 2

RECORD ANY COMMENTS

IF NOTHING (1)

(b) Was it free because you were under 21, because of your age, or because your mother or was it some other reason?

Under 21 3
Free or because of age 4
Other (SPECIFY) 5

34(a) Next time you go to the dentist will you go to the dentist or group of partners you went to last time or not?

Same as last time 1
Not 2

IF SAME AS LAST TIME (1)

(b) About how far is the dental surgery from where you live? Is it more than a mile and five miles or more than five miles?

Less than a mile 3
More than a mile 4
More (SPECIFY) 5

(c) Do you usually go to the dentist direct from home or from work, or are you not at work?

Not at work 6
At work, go from home 7
At work, go from work 8
At work, either or both 9

(d) How long does it usually take you to get to the dentist?

.....

(e) How did you come to choose that particular dentist?

.....

IF NOT SAME DENTIST (2)

(f) Why will you change your dentist next time?

.....

IF INTERVIEWING IN THE HIGHLANDS

THAT IS IN AREAS 01 - 30

35

Highlands area 1 Ask (a)
Do to 2 Do to
Not 2 2-36

(a) Do you have any problems in this area
in getting to the dentist, or not?

Problems 3 Ask (b)
Not 4 Do to
2-36

(b) What sort of problems?

PROBE FULLY

36	Have you ever been sent, by a dentist, to a hospital for dental treatment?	Yes 1 No 0
	IF YES (1)	
	(i) How long ago is it since he sent you to the hospital? (LAST OCCASION) time ago years mths (IF LESS THAN 2 YEARS)	
	(ii) Why did he send you to the hospital?	

37(a) What do you find most unpleasant during a visit to the dentist?

(b) What sort of qualities do you think make the best dentists? (sort of person)

CLASSIFICATION - TO ALL

101

No.	(a) Relationship to Informant NAME FOR THOSE 16-21 YES. M F	(b) Sex	(c) Date of Birth Day, Mth, Yr	(d) Marital Status		(e) Age at last full time education (informant only)
				M	S	
1	INFORMANT	1	2	3	4	5
Age last birthd.						
2		1	2	3	4	5
3		1	2	3	4	5
4		1	2	3	4	5
5		1	2	3	4	5
6		1	2	3	4	5

102 What is the occupation of H.O.B.N.
(GIVE OCCUPATION AND INDUSTRY)

OCCUPATION

INDUSTRY

INTERVIEWER

103 (1) IS THE INFORMANT THE BORN?

IF YES (1)

(11) ARE THERE ANY YOUNG PERSONS
AGED 16-21 (INCLUDE) LAST
BIRTHDAY IN THIS HOUSEHOLD?
(A WIFE AGED 16-21 IS A YOUNG PERSON)

IF YOUNG PERSONS (3)

(11) HOW MANY?

(12) CHECK NAMES AGAINST THOSE ON ADDRESS LIST
HOW MANY ARE ON ADDRESS LIST, HOW MANY
ARE NOT?

(9) PLEASE ARRANGE TO INTERVIEW ALL THOSE
YOUNG PERSONS WHO WERE NOT ON ADDRESS LIST.

Yes 1
No 2

GO TO
Q:104

see(6)
GO TO
Q:104

Young persons 3
Not 4

No.

On address list
Not 2

People's attitudes sometimes vary according to what country they have
lived in.

104(a) Were you born in Scotland?

Born in Scotland 1
Not A

IF NOT (A)

(b) Where were you born?

GIVE COUNTRY

105(a) Did you spend most of your childhood in Scotland or not?
(CHILDHOOD = UP TO 16 YRS)

Yes 1
No D

IF NOT (D)

(b) Where did you spend most of your childhood?

GIVE COUNTRY

106(a) Was your father born in Scotland?

Father born in Scotland 1
Not B

IF NOT (B)

(b) Where was your father born?

GIVE COUNTRY

107(a) Was your mother born in Scotland?

Mother born in Scotland 1
Not C

IF NOT (C)

(b) Where was your mother born?

GIVE COUNTRY

108 INTERVIEWER OBSERVE

White 1
Other 2

INTRODUCTION AS NECESSARY

109(a) The Home and Health Department is most interested in finding out about the dental needs of the people of the country. We are especially interested in your help. We'd like you to help us a little more in this survey. If you are agreeable I'd like to come back in a few days and bring a dentist who would look over your teeth. He just makes a normal dental examination, and he doesn't do any treatment. He just looks at the teeth and tells you what he has found over the whole country. He only looks at your teeth, it involves no treatment of course.

(i) Length of time for examination.
(ii) He won't comment on your teeth at all, to you or anyone else (ethics).
(iii) Some things only a dentist looking at your teeth would see.
(iv) Results will help to estimate the need for treatment. ...
(v) Reassurance that it will not hurt at all.

<p>IF WILLING (7)</p> <p>(b) Appointment details</p>	<p>Willing to have examination 7</p> <p>Not 8</p>
<p>IF NOT WILLING (8)</p> <p>(c) NOTE ANY COMMENTS - GIVE FULL EXPLANATION ON COVER</p>	

SCOTTISH
ADULT DENTAL HEALTH

QUESTIONNAIRE 2

HAS (HAD) PARTIAL DENTURES

Area No.	Serial No.	Form No.

1. I'd like to talk first about your natural teeth. Some people have a lot of trouble with their teeth. (If you were to) (a) When you are eating chocolate, or sweet things, do you get any twinges or toothaches? Gets twinges 1 Does not 2	
(b) Sometimes, if there are any holes in your teeth you can feel them with your tongue. As far as you know are there any holes in your teeth? Holes 3 Not 4	
(c) Do you think that any of your teeth are at all loose? Some loose ... 5 None 6	
2. Apart from trouble with their teeth some people have trouble with their gums. (a) During the last week have your gums felt sore or tender at all, or not? Gums sore or tender 1 Not 2	
(b) During the last week have your gums bled at all when you cleaned your teeth, or not? Gums bled 3 Have not 4	
(c) Have you ever had any other kind of trouble with your gums, or mouth? Yes 5 No 6	
IF YES (5) (a) What sort of trouble?	

3. I'd like to ask you a few more details about your teeth, and this picture might help (HAND OVER CARD A)

People usually start off with 16 teeth at the top, and 16 at the bottom, the pattern is the same on the left, as on the right, that is three single teeth at the front for biting and five double teeth at the back for chewing.

- (a) You probably know that the very back tooth on each side, both at the top and at the bottom is called a wisdom tooth. Some people get all 4 of these teeth early, some people get them late and some people never get them at all. Which of your wisdom teeth have, at some time come through ...

... has the one at the ...
come through or not?

Come through
DK

If 'Come through' (A)

- (b) Have you still got
the ... wisdom teeth
or have you had it
out since?

	top		bottom	
	left	right	left	right
Come through	A	A	A	A
Not come through	3	3	3	3
DK	4	4	4	4
Still got it	1	1	1	1
Taken out	2	2	2	2

IF INFORMANT SAYS IT WAS IMPACTED AND WAS TAKEN OUT CODE 2.

OFFICE USE

	8	7	6	5	4	3	2	1	1	2	3	4	5	6	7	8
UL																
LL																

--	--	--

- 2 -

4. I'd like to move on from wisdom teeth to talk about any other teeth you may have lost.

TOP TEETH

(a) Can I start with your top teeth.
Have you lost any of your top teeth on the left hand side?
IF YES

Can you show me from the picture which ones you have lost?
MARK A CROSS THROUGH EACH MISSING TOOTH

(b) Have you lost any of your top teeth on the right hand side?
IF YES

Can you show me from the picture which ones you have lost?
MARK A CROSS THROUGH EACH MISSING TOOTH

Tick ☐ None lost at top on left

Tick ☐ None lost at top on right

BOTTOM TEETH

5(a) Can I now ask you about your bottom teeth. Have you lost any of your bottom teeth on the left hand side?
IF YES

Can you show me from the picture which ones you have lost?
MARK A CROSS THROUGH EACH MISSING TOOTH

(b) Have you lost any of your bottom teeth on the right hand side?
IF YES

Can you show me from the picture which ones you have lost?
MARK A CROSS THROUGH EACH MISSING TOOTH

Tick ☐ None lost at bottom on left

Tick ☐ None lost at bottom on right

- 3 -

Next I would like to ask about fillings or stoppings

6 TOP TEETH

(a) Do you have any fillings in any of your top teeth on the left hand side?

No teeth X
Yes 1 2

(b) Do you have any fillings in any of your top teeth on the right hand side?

No teeth X
Yes 1 2

7 BOTTOM TEETH

(a) Do you have any fillings in any of your bottom teeth on the left hand side?

Yes 1
No 2

(b) Do you have any fillings in any of your bottom teeth on the right hand side?

Yes 1
No 2

8 IF GOT NO FILLINGS AT ALL (Q.6 and Q.7 all codes = 2)

Have you ever had any fillings or stoppings?

Has had fillings 3
Has not 4

TAKEN BACK CARD A

9 TO ALL WHO HAVE HAD FILLINGS (ANY CODE 1 OR CODE 3)

Have you ever had an injection to kill the pain when having a tooth filled?

Had injection 1
Not 2

10 Have you ever had an X-ray taken of any of your teeth?

Had X-ray 1
Not 2

11 Would you say that your natural teeth are stronger and healthier than most people you know, about the same, or not as strong and healthy?

Stronger and healthier 1
About the same 2
Not as strong and healthy 3

12

D N A

13(a) If you went to the dentist with an aching back tooth would you prefer the dentist to take it out or to fill it?
PROMPT AS NEC. "Supposing it could be filled?"
Take it out 1
Fill it 2
Other (SPECIFY) 3

(b) If you went to the dentist with an aching front tooth would you prefer the dentist to take it out or to fill it?
PROMPT AS NEC. "Supposing it could be filled?"
Take it out 1
Fill it 2
Other (SPECIFY) 3

14

D N A

15 A lot of people eventually have to have full dentures; do you find the thought of having all false teeth

..... very upsetting 1
..... a little upsetting 2
..... not at all upsetting 3

GO TO Q.10

16(a) In general who do you think lose all their natural teeth first, men or women, or do you think it is the same for both?

Men first 4
Women first 5
Both the same 6

IF MEN FIRST (4) OR WOMEN FIRST (5)

(b) Why do you think men (women) lose all their teeth first?

17(a) If you were to go to a dentist tomorrow do you think that any of your teeth would need to be either filled or taken out, or do you think no such treatment would be necessary?	Some such treatment 1 Having treatment soon 2 None 3 None 4	Go to (b)
IF SOME SUCH TREATMENT (A AND B)		
(b) How many teeth do you think would/need to be either filled or taken out?	Yes C No 1	
(c) (If you were to go to a dentist tomorrow) do you think you would need any other kind of treatment (apart from having teeth filled or taken out)?	Yes C No 1	
IF YES (C)		
(d) What kind of treatment?	Yes C No 1	Ask (d)
18 Different people have different ideas as to what things help to keep teeth healthy. I'd like to talk about some things people have mentioned. Can you tell me how important you consider them for keeping teeth healthy.		
HAND OVER CARD B		
Would you say that	VERY important fairly important not very important not at all important	FOR KEEPING TEETH HEALTHY
(i) Not eating sweets is	1 2 3 4 5	D.K.
(ii) Regular visits to the dentist are	1 2 3 4 5	
(iii) Cleaning teeth regularly is	1 2 3 4 5	
(iv) Having fluoride in the water is	1 2 3 4 5	
(v) A healthy diet is	1 2 3 4 5	
19(a) When you were a child were you encouraged to clean your teeth ....	..... very much 1 a fair amount 2 not much 3 or not encouraged at all 4	
(b) Did you ever have your teeth looked at by a school dentist?	Looked at by school dentist A Not 6 IF LOOKED AT BY SCHOOL DENTIST (A) Did you ever have any treatment from the school dentist? Yes 7 No 8	
(c) Apart from the school dentist, did you see any other dentist, or go to a hospital for dental treatment, before you were 16 years old?	Yes B No 4 IF YES (B) As a child, did you go to the dentist for a regular check up 1 an occasional check up 2 or only when you were having trouble with your teeth 3	
20 When you went to the dentist, as a child, did you ever have any unpleasant experiences?	Did not go 9 Yes 7 No 8 IF YES (7) What was it that made it unpleasant? IF MORE THAN ONE (1) WHAT WAS IT THAT MADE IT UNPLEASANT? THAT MOST UNPLEASANT EXPERIENCE	

21	When you've been to the dentist, as an adult, have you ever had any unpleasant experiences?	Yes 7 No 8 Have not been 9	IF YES (7) IF MORE THAN ONE, CHECK OFF ALL THAT APPLY TAKE MOST UNPLEASANT EXPERIENCE	(1) What was it that made it unpleasant?	
22(a)	How often do you clean your teeth, now?	Never 0 per			Go to Q-25
(b)	At what time of day do you clean them?	Before breakfast 1 After breakfast 2 RING ALL 3 Midday 4 Tea time 5 After evening meal 6 After night 7 Other (SPECIFY) 8 IF MORNING ETC. ASK 'IS THIS BEFORE OR AFTER BREAKFAST' AND PLACE A NOTE			Go to Q-26
(c)	People clean their teeth in different ways, and some people wear out toothbrushes quickly and some people slowly. About how often do you have a new toothbrush?	.....			Ask (a) Ask (c)
23	Could you pretend that you have a toothbrush in your hand; can you show me just how you use it when you clean your teeth?	.....			Ask (b) Ask (c)
(a)	INTERVIEWER OBSERVE	Wrist movement only 1 Back and forth scrub 2 All scrub 3			
(b)	INTERVIEWER CHECK	Right hand used 4 Left hand used 5 Either or both 6			
24	Has a dentist ever demonstrated to you how best to clean your teeth? RECORD ANY COMMENTS	Yes 1 No 2			
25(a)	Have you been to the dentist since the beginning of December that's about 6 months ago?	Yes A No B			Ask (b) Ask (c)
(b)	Are you under treatment now or not?	Under treatment now 1 Not 2			Go to Q-26
(c)	Have you been to the dentist since last May (June) that's about a year ago?	Yes 3 No C			Go to Q-26 Ask (a) Ask (b)
(d)	About how long ago was your last visit to the dentist?	PROMPT More than 1 up to 2 years ago 4 More than 2 up to 3 years ago 5 More than 3 up to 4 years ago 6 More than 4 up to 5 years ago 7 More than that (SPECIFY) 8 Never 9			Go to Q-26 Go to Q-101
(e)	Has this before the new charges started or since the 1st 1971 or after they had started?	Before April last 5 April last or after 4			
26	The last time you went to the dentist what made you go? Was it because you were having some trouble with your teeth or for a check up, or for some other reason?	Trouble with teeth 4 Check up 5 Other (SPECIFY) 6			
27(a)	In general do you go to the dentist for .....	..... a regular check up 7 an occasional check up 8 or only when you are having trouble with your teeth 9			Ask (b) Ask (c)
(b)	Does the dentist send you a reminder when it is time to go for your next check up?	Reminder 1 Not 2			
(c)	What is the main reason for you not going for a regular check up?	.....		
28	The last time you wanted to see a dentist how far ahead did you have to make the appointment with him, once you wanted one?	.....		

29

When people go to the dentist for a check up, or because they've got trouble with their teeth, they sometimes have to make one visit and sometimes more than one visit.

(a) The last time you went to the dentist did you make one visit or several visits?

IF SEVERAL (A)

One visit 1
Several A

(b) About how many visits did you make for that course (set) of treatment?

30 To (all) the visit(s) you made to the dentist (for that set of treatment) what did you have done?

ROUTED

	ROUTED	Yes	No	DK
Examination (check)	5			
X-ray	6	7	8	9
No. of teeth filled	1	2	3	4
No. of teeth out	6	7	8	9
Fillings (stoppings)	1	2	3	4
Extractions (teeth out)	6	7	8	9
Scale (clean, scrape) and polish	1	2	3	4
Fitting of new dentures	6	7	8	9
Repair of old dentures	1	2	3	4
Other (SPECIFY)	0			

31 Was your treatment under the National Health Service or was it private?

	National Health Service	Private	Other (SPECIFY)
.....	1	2	3

32(a) Did the dentist tell you about what treatment he was going to carry out or not?

Ask (b)

IF DENTIST TOLD PATIENT (A)

(b) Was what he said sufficient for you to understand or did you feel that you would have liked a fuller explanation of what he was going to do?

Sufficient 7
Would have liked more 8

33(a) How much did the whole treatment cost you?

RECORD ANY COMMENTS

	Cost	(SPECIFY)	ask (b)
.....	A		
Nothing	1		
D.K.	2		

IF NOTHING (1)

(b) Was it free because you were under 21, because you were a pregnant or nursing mother or was it some other reason?

	Under 21	Pregnant or nursing	Other (SPECIFY)
.....	3	4	5

34(a) Next time you go to the dentist will you go to the dentist or group of partners you went to last time or not?

Same as last time 1
Not 2

IF SAME AS LAST TIME (1)

(b) About how far is the dental surgery from here, would you say it was under a mile, between a mile and five miles or more than five miles?

Less than a mile 3
1 - 5 miles 4
More (SPECIFY) 5

(c) Do you usually go to the dentist direct from home or from work, or are you not at work?

Not at work 6
At work, go from home 7
At work, go from work 8
At work, either or both 9

(d) How long does it usually take you to get to the dentist's?

.....

(e) How did you come to choose that particular dentist?

.....

IF NOT SAME DENTIST (2)

(f) Why will you change your dentist next time?

IF INTERVIEWING IN THE HIGHLANDS

35

WHAT IS IN AREAS D1 - 30

(a) Do you have any problems in this area
in getting to the dentist, or not?

(b) What sort of problems?
PROBE FULLY

Highlands area 1	Ask (a)
Not 2	Do to Q.36
Problems 3	Ask (b)
Not 4	Do to Q.36

36

Have you ever been sent, by a dentist, to a hospital for dental treatment?

Yes 1
No 0

IF YES (1)

(i) How long ago is it since he sent
you to hospital?
(LAST OCCASION) time ago years mths
(IF LESS THAN
2 YEARS)

(ii) Why did he send you to the hospital?

37(a) What do you find most unpleasant during a visit to the dentist?

(b) What sort of qualities do you think make the best dentists?
(sort of person)

FOR ALL PLATES CODED 2 AT Q-53

54

TOP	BOTTOM
Why don't you wear your top plate? GIVE REASONS	Why don't you wear your bottom plate? GIVE REASONS

FOR ALL PLATES CODED 6 AT Q-53

55

TOP	BOTTOM
When do you wear your top plate? GIVE REASONS	When do you wear your bottom plate? GIVE REASONS

FOR ALL PLATES CODED 6 AT Q-53

56

TOP	BOTTOM
When do you wear your top plate? GIVE REASONS	When do you wear your bottom plate? GIVE REASONS

I would like to talk now about your partial dentures (false teeth)

50(a) Are your dentures on a top plate, a bottom plate or both?

TOP PLATE	BOTTOM PLATE
Top only 1	
Bottom only 2	
Both 3	

(b) In the top plate (bottom plate) a full plate or not?

TOP PLATE	BOTTOM PLATE
Full plate 1	
Not A	

IF NOT FULL (A)

(c) Has the top plate (bottom plate) got some front teeth on it, or is it all back teeth?

TOP PLATE	BOTTOM PLATE
Some front 2	
All back 3	

51

Do you usually keep your top plate (bottom plate) in at night?

52 Some people don't like the rest of their family to see them without their teeth. Does this worry you very much, to some extent, or not at all?

TOP PLATE	BOTTOM PLATE
Very much 1	
To some extent 2	
Not at all 3	

53 Peoples top teeth and bottom teeth sometimes give different kinds of problems, so I'd like to talk about your top plate and bottom plate separately.

(a) Have you worn your top plate (bottom plate) at all during the last 4 weeks?

TOP PLATE	BOTTOM PLATE
Has worn 1	
Has not 2	

REPEAT FOR BOTTOM PLATE

IF WORN IN LAST 4 WEEKS (1)

(b) Do you usually keep your top plate (bottom plate) in at night?

TOP PLATE	BOTTOM PLATE
In at night 3	
Not 4	

(c) Do you wear your top plate (bottom plate) from the time when you get up to when you go to bed?

TOP PLATE	BOTTOM PLATE
All the day time 5	
Not all day 6	

OFFICE USE

INTERVIEWER FOR ALL PLATES CODED 2 AT 53(a), ASK Q-54
AND FOR ALL PLATES CODED 6 AT 53(c), ASK Q-55

IF NO PLATES CODED 2 OR 6
GO TO Q-56

	TOP PLATE	BOTTOM PLATE
56	Difficulties 1 1 None 2 2 (None)	Difficulties 1 1 None 2 2 (None)
57	Difficulties 1 1 None 2 2 (None)	Difficulties 1 1 None 2 2 (None)
58	Difficulties 1 1 None 2 2 (None)	Difficulties 1 1 None 2 2 (None)
59	Difficulties 1 1 None 2 2 (None)	Difficulties 1 1 None 2 2 (None)
60	Difficulties 1 1 None 2 2 (None)	Difficulties 1 1 None 2 2 (None)
61	Difficulties 1 1 None 2 2 (None)	Difficulties 1 1 None 2 2 (None)
62	Difficulties 1 1 None 2 2 (None)	Difficulties 1 1 None 2 2 (None)
63	Difficulties 1 1 None 2 2 (None)	Difficulties 1 1 None 2 2 (None)

Some people are fortunate with the fit of their dentures and some people are not.

Do you have any difficulties with your (Old) top plate (bottom plate) if you wear (worn) (yarned)?

Do you have any difficulties with your top plate (bottom plate) if you wear (worn) (yarned) on you (were) talking?

Would you have any difficulties with your top plate (bottom plate) if you were chewing meat?

Would you have any difficulties with your top plate (bottom plate) if you were to bite into a raw apple?

During the last 4 weeks has your top plate (bottom plate) hurt or made your mouth sore or not?

Would you say that your top plate (bottom plate) is too loose, too right, or too tight?

INTERVIEWER - SUMMARY CODE

INFORMANT WEARS ALL PLATES ALL DAY TIME (Q.53(c) CODED 5,5) AND HAS NO DIFFICULTIES (Q's 56-61, ALL CODED 2) 8

ALL OTHERS WHO HAVE HAD DENTURES 9

TO THOSE NOT WEARING AND/OR HAVING DIFFICULTIES (9)

(a) Are you planning to visit the dentist to see if anything can be done about your dentures? Planning to visit 6

IF NOT (7) Not 7

(b) Why not? Why not? 7

64 How long have you had your present top plate (bottom plate)?

TOP PLATE

BOTTOM PLATE

..... yrs mths
(IF UNDER 2 YES)

Did you get your present top plate (bottom plate) from the National Health Service or did you get it privately?

NHS 1 1
Privately 2 2
(incl. obtained before NHS)

Q.66 and 67 D.N.A.

68(a) Do you find that it is difficult to keep false teeth clean or not?

Yes 1
No 0

(b) How often do you clean your false teeth?

Do you soak them, or not?

IF SOAKS THEN (A)

(1) What do you soak them in?

Soaks them A
Not 0

(c) Do you do anything else to keep them clean?

Yes C
No 0

IF YES (C)

(1) What do you do?

Yes C
No 0

(1) What do you do?

Yes C
No 0

(1) What do you do?

Yes C
No 0

(1) What do you do?

Yes C
No 0

(1) What do you do?

Yes C
No 0

99 IF HAD MORE THAN ONE PART SET

You say you've had _____ sets of partial dentures so far.

(a) When you had your 2nd set did the dentures have more teeth on than the 1st set? 2nd had more teeth 1
Not 2

REPEAT (a)

3rd Set of 2nd Set 3rd had more teeth 1
Not 2

4th Set of 3rd Set 4th had more teeth 1
Not 2

5th Set of 4th Set 5th had more teeth 1
Not 2

98(a) How old were you when you had your first false teeth on a plate? years

(b) Did you need your first false teeth mainly for the sake of appearance or mainly to help you to eat? Mainly for sake of appearance 4
Mainly to help you to eat 5

(c) Since you had your first false teeth on a plate, how many more of your own teeth have you lost? Number 1
One set only 1
Number 100

IF MORE THAN ONE PART SET

(e) Were your first false teeth on a top plate, a bottom plate or both? Top plate 3
Bottom plate 4
Both 5

(f) IF TOP PLATE OR BOTH (3 OR 5)
Was the first top plate a full plate or not? Full plate 7
Not A

(g) IF NOT FULL (A)
Had the top plate got some front teeth on it or were they all back teeth? Some front teeth 8
All back teeth 9

(h) IF BOTTOM PLATE OR BOTH (4 OR 5)
Was the first bottom plate a full plate or not? Full plate 7
Not B

(i) IF NOT FULL (B)
Had the bottom plate got some front teeth on it or were they all back teeth? Some front teeth 8
All back teeth 9

100

We've been talking a lot about your desires.

Are there any points or comments you would like to make about having (partial) dentures?

101

PT
FIR
SUN
#.

CLASSIFICATION - TO ALL

No.	(a) Relationship to Informant, NAME FOR THOSE 16-21 YRS.	(b) Sex M F	(c) Date of Birth Day, Mo, Yr	(d) Marital Status M S W	(e) Age finished full education (informant only)
1	INFORMANT	1 2		3 4 5	14 yrs or less ....1 15 yrs ....2 16 yrs ....3 17 yrs ....4 18 yrs or more ....5 Still being educated ...6
2		1 2		3 4 5	
3		1 2		3 4 5	
4		1 2		3 4 5	
5		1 2		3 4 5	
6		1 2		3 4 5	

102

What is the occupation of H.O.H.
(GIVE OCCUPATION AND INDUSTRY)

OCCUPATION

INDUSTRY

103

INTERVIEWER

(1) IS THE INFORMANT THE HWT?

IF YES (1)

(11) ARE THERE ANY YOUNG PERSONS

AGED 16-21 (INCLUDE) LAST

INTERVIEWED IN THIS

(A WIFE AGED 16-21 IS A YOUNG PERSON)

IF YOUNG PERSONS (1)

(11) HOW MANY?

(11) CHECK NAMES AGAINST THOSE ON ADDRESS LIST

HOW MANY ARE ON ADDRESS LIST, HOW MANY

ARE NOT

(11) PLEASE ARRANGE TO INTERVIEW ALL THESE

YOUNG PERSONS WHO WERE NOT ON ADDRESS LIST.

Yes ... 1

No ... 2

GO TO
Q.104

Young persons ... 3

Not ... 4

see (11)
GO TO
Q.104

No ...

On address list ...

Not ...

People's attitudes sometimes vary according to what country they have lived in.

104(a)	Were you born in Scotland? Born in Scotland 1 Not A	
(b)	Where were you born? GIVE COUNTRY	
105(a)	Did you spend most of your childhood in Scotland or not? (CHILDHOOD = UP TO 16 YRS) Yes 1 No D	
(b)	Where did you spend most of your childhood? GIVE COUNTRY	
106(a)	Was your father born in Scotland? Father born in Scotland 1 Not B	
(b)	Where was your father born? GIVE COUNTRY	
107(a)	Was your mother born in Scotland? Mother born in Scotland 1 Not C	
(b)	Where was your mother born? GIVE COUNTRY	
108	INTERVIEWER OBSERVE White 1 Other 2	

INTRODUCE AS NECESSARY

109(a) The Home and Health Department is most interested in finding out about people's dental experiences) and we are very grateful for your help. We'll be in touch with you again in a few days and but if you are agreeable I'd like to come back in a few days and but if you would look over your teeth. He just makes a normal dental examination, and it completes the picture for us as far as people's teeth are concerned in this country. He only looks at your teeth, it involves no treatment of course.

(1) Length of time for examination.

(ii) He won't comment on your teeth at all, to you or anyone else (ethics).

(iii) Some things only a dentist looking at your teeth would see.

(iv) Results will help to estimate the need for treatment.

(v) Reassurance that it will not hurt at all.

Willing to have examination 7
Not 8

IF WILLING (7)

(b) Appointment details

IF NOT WILLING (8)

(c) NOTE ANY COMMENTS - GIVE FULL EXPLANATION ON COVER

SCOTTISH
ADULT DENTAL HEALTH
QUESTIONNAIRE 3
HAS LOST ALL NATURAL TEETH

Area No.	Serial No.	Form No.

51(a) Could I check, have you ever had a full set of dentures or not? Have (had) full dentures 8
Not 9
ASK 52
ASK(b)

IF NOT (9)

(b) Why have you never had full dentures?

GO TO Q. 69

52 Some people don't like the rest of their family to see them without their teeth. Does this worry you very much, to some extent, or not at all? Very much 1
To some extent 2
Not at all 3

53 Peoples top teeth and bottom teeth sometimes give different kinds of problems, so I'd like to talk about your top plate and bottom plate separately.

(a) Have you worn your top plate (bottom plate) at all during the last 4 weeks?

Has worn 1
Has not 2

IF WORN IN LAST 4 WEEKS (1)

(b) Do you usually keep your top plate (bottom plate) in at night?

In at night 3
Not 4

(c) Do you wear your top plate (bottom plate) from the time when you get up to when you go to bed?

All the day time 5
Not all day 6

OFFICE
USE

INTERVIEWER FOR ALL PLATES CODED 2 AT 53(a), ASK Q.54. IF NO PLATES CODED 2 OR 6
AND FOR ALL PLATES CODED 6 AT 53(c), ASK Q.55. GO TO Q.56

FOR ALL PLATES CODED 2 AT Q-53

54

TOP	BOTTOM
When don't you wear your top plate? GIVE REASONS	When don't you wear your bottom plate? GIVE REASONS

FOR ALL PLATES CODED 6 AT Q-53

55

TOP	BOTTOM
(a) When do you wear your top plate? GIVE REASONS	When do you wear your bottom plate? GIVE REASONS

(b)

TOP	BOTTOM
When don't you wear your top plate? GIVE REASONS	When don't you wear your bottom plate? GIVE REASONS

		TOP PLATE	BOTTOM PLATE
56	Some people are fortunate with the fit of their dentures and some people are not. Do you have any difficulties with your top plate (bottom plate) if you wear? (wears) (wears)	Difficulties 1 1 None 2 2	
57	Do you have any difficulties with your top plate (bottom plate) if you wear? (wears) talking?	Difficulties 1 1 None 2 2	
58	Would you have any difficulties with your top plate (bottom plate) if you wear dentures?	Difficulties 1 1 None 2 2	
59	Would you have any difficulties with your top plate (bottom plate) if you wear dentures into a new appliance?	Difficulties 1 1 None 2 2	
60	During the last 4 weeks has your top plate (bottom plate) hurt or made your mouth sore or not?	Burnt/sore 1 1 Not burnt mouth 2 2 Not worn 3 3	
61	Would you say that your top plate (bottom plate) is too loose, about right, or too tight?	Too loose 1 1 About right 2 2 Too tight 3 3	
62	INTERVIEWER - SUMMARY CODE INFORMANT WEARS BOTH PLATES ALL DAY TIME (Q-53(c) CODED 5,5) AND HAS NO DIFFICULTIES (Q's 56-61 ALL CODED 2) ALL OTHERS WHO HAVE HAD DENTURES	..... 8	Go to Q-63
63	TO THOSE NOT WEARING AND/OR HAVING DIFFICULTIES (9) (a) Are you planning to visit the dentist to see if anything can be done about your dentures? Planned to visit 6 Not 7 (b) IF NOT (7) Why not?		

- 2 -

- 3 -

64 How long have you had your present top plate (bottom plate)?

TOP PLATE	BOTTOM PLATE
..... Yrs mths (IF UNDER 2 YRS)	..... Yrs mths (IF UNDER 2 YRS)

65 Did you get your present top plate (bottom plate) through the National Health Service or did you get it privately?

TOP PLATE	BOTTOM PLATE
NHS 1 1 Private 2 2 (including obtained before NHS)	NHS 1 1 Private 2 2 (including obtained before NHS)

66 Do you know how much it would cost you nowadays to have a full set of false teeth under the National Health Service?

Yes 3	
No 4	

IF YES (3)

(1) How much does it cost?

.....	
-------	--

67(a) Since you had both a full top plate and a full bottom plate how many top plates (bottom plates) have you had?

.....	
-------	--

Top plates Bottom plates

IF MORE THAN ONE

(b) Why did you have to have new ones?

.....	
-------	--

68(a) Do you find that it is difficult to keep false teeth clean or wet?

Yes 1	
No 0	

(b) How often do you clean your false teeth?

.....	
-------	--

(c) Do you soak them, or not?

IF SOAKS THEM (A)	Soaks them A
(1) What do you soak them in?	Not 0

(d) Do you do anything else to keep them clean?

IF YES (C)	Yes C
(1) What do you do?	No 0

I'd like to go back to the time when you were a child, that is before you were 16 years old.

69(a) When you were a child were you encouraged to clean your teeth

..... very much 1	
..... a fair amount 2	
..... not much 3	
..... or not encouraged at all 4	

(b) Did you ever have your teeth looked at by a school dentist?

Looked at by school dentist A	
Not 6	
Can't remember 9	

IF LOOKED AT BY SCHOOL DENTIST (A)

(1) Did you ever have any treatment from the school dentist?

Yes 7	
No 8	

(c) Apart from the school dentist, did you see any other dentist, or go to a hospital for dental treatment, before you were 16 years old?

Yes B	
No 4	
Can't remember 5	

IF YES (B)

(1) As a child, did you go to the dentist for

a regular check up 1	
to get false teeth 2	
or only when you were having trouble with your teeth? 3	

EXCLUDE SCHOOL DENTIST

70	When you went to the dentist, as a child, did you ever have any unpleasant experiences?	Did not go 9 Yes 7 No 8 Can't remember 6
IF MORE THAN ONE TAKE MOST UNPLEASANT EXPERIENCE	(i) What was it that made it unpleasant?	
71	When you've been to the dentist, as an adult, have you ever had any unpleasant experiences?	Yes 7 No 8 Have not been 9
IF MORE THAN ONE TAKE MOST UNPLEASANT EXPERIENCE	(i) What was it that made it unpleasant?	
72	Different people have different ideas as to what things help to keep teeth healthy. I'd like to talk about some things people have mentioned. Can you tell me how important you consider them for keeping teeth healthy.	
HAND OVER CARD B		
<p>Would you say that</p> <p>(i) Not eating sweets is 1 2 3 4 5</p> <p>(ii) Regular visits to the dentist are 1 2 3 4 5</p> <p>(iii) Cleaning teeth regularly is 1 2 3 4 5</p> <p>(iv) Having fluoride in the water is 1 2 3 4 5</p> <p>(v) A healthy diet is 1 2 3 4 5</p>		<p>FOR KEEPING TEETH HEALTHY</p> <p>very important 1 2 3 4 5</p> <p>fairly important 2 3 4 5</p> <p>not at all important 3 4 5</p> <p>D.K.</p>

73	When you had your own teeth, did you ever have any of them filled or stopped?	Had some filled (or stopped) A Did not 3
IF HAD SOME FILLED (A)		
(a)	Did you ever have an injection to kill the pain when having a tooth filled?	Had injection 1 Not 2
74	Did you ever have an X-ray taken of your natural teeth?	Had X-ray 6 Did not 7
75	While you had your own teeth did you go to the dentist for regular check-ups, or occasional check-ups only when you had trouble with your teeth?	Regular check-ups 7 Occasional check-ups 8 Only when had trouble with teeth 9
76	Would you say that when you had your own teeth you were stronger and healthier than most people you know, about the same, or not as strong and healthy?	Stronger and healthier 1 About the same 2 Not as strong and healthy 3
77(a)	In general who do you think lose all their natural teeth first, men, or women, or do you think it is the same for both?	Men first 4 Women first 5 Both the same 6
IF MEN FIRST (A) OR WOMEN FIRST (5)		
(b)	Why do you think men (women) lose all their teeth first?	

I'd like to talk next about when you had the last of your teeth out.

TO ALL

78(a)	How many years ago did you have the last of your own teeth taken out?	Up to 5 years ago 1 More than 5 up to 10 years ago 2 More than 10 up to 15 years ago 3 More than 15 up to 20 years ago 4 ----- More than 20 years ago A
	IF MORE THAN 20 YEARS AGO (A)	
(b)	Was this before or after the beginning of the National Health Service (1948)?	Before 6 After 5
79	How old were you then?	..... years
80(a)	When you lost the last of your own teeth (before having your full false set), how many teeth were there to be taken out?	Number
(b)	Were these all taken out together or were they taken out over a series of visits?	All in one visit 1 Series of visits 2
(c)	How long after you had the last of your own teeth out did you have your false teeth in?	.....
(d)	Why did the last of your own teeth have to be taken out, was it because	the teeth were decayed 1 the gums were bad 2 COPE ALL THAT APPLY 3 Other reason? (SPECIFY)
(e)	Did you find the thought of losing the last of your natural teeth and having full dentures ....	..... very upsetting 7 a little upsetting 8 or not at all upsetting? 9
(f)	Did you suggest to the dentist that the last of your teeth should come out or did he suggest this to you?	Informant suggested to dentist 1 Dentist suggested to informant 2 Other (SPECIFY) 3

- 8 -

81(a) At the time when you had the last of your own teeth out did you already have a part set of false teeth, or not?

IF NO PART SET (1)

(b) Were these false teeth on a top plate, on a bottom plate or both?

(c) IF TOP PLATE OR BOTH (3 OR 5)

Was the top plate a full plate or not?

(d) IF BOTTOM PLATE OR BOTH (4 OR 5)

Was the bottom plate a full plate or not?

Can I go back to when you first had some dentures

(e) How old were you when you had your first false teeth on a plate (part set)?

IF Q.78(a) IS CODE A GO TO Q.82

(f) Did you need your first false teeth mainly for the sake of appearance or mainly to help you to eat?

(g) How many part sets did you have before you had the last of your natural teeth out?

IF MORE THAN ONE PART SET

(h) Were your first false teeth on a top plate, a bottom plate or both?

(i) IF TOP PLATE OR BOTH (3 OR 5)

Was the top plate a full plate or not?

(j) IF BOTTOM PLATE OR BOTH (4 OR 5)

Was the bottom plate a full plate or not?

(k) You say you had sets of partial dentures altogether.

When you had your 2nd set, did the first set have more teeth on than the first set?

REPEAT

" 3rd set of 2nd set "

" 4th set of 3rd set "

" 5th set of 4th set "

- 9 -

Had part set 1
Did not 2

Go to Q.82

Top plate 3
Bottom plate 4
Both 5

Full top plate 6
Not 7

Full bottom plate 8
Not 9

..... years

IF Q.78(a) IS CODE A GO TO Q.82

Mainly for sake of appearance 1
Mainly to help you to eat 2

One set only 1
Number 2

Go to Q.82

Top plate 3
Bottom plate 4
Both 5

Full top plate 6
Not 7

Full bottom plate 8
Not 9

2nd more teeth 1
not 2

3rd more teeth 1
not 2

4th more teeth 1
not 2

5th more teeth 1
not 2

82(a)	Have you been to the dentist in the last year?	Yes A No B	Ask (b) Ask (c)
	IF YES (A)		
(b)	Are you under treatment now or not?	Under treatment now 1 Not 2	
	IF NO (B)		
(c)	About how long ago was your last visit to the dentist?	More than 1 up to 2 years ago 3 More than 2 up to 3 years ago 4 More than 3 up to 4 years ago 5 More than 4 up to 5 years ago 6 More than 5 up to 10 years ago 7 More than 10 up to 15 years ago 8 More than 15 up to 20 years ago 9 More than 20 years ago D	Ask (c) Do to Q.83 Do to Q.80 Ask (d)
	IF LAST VISIT TO DENTIST MORE THAN 20 YEARS AGO (CODE D)		
(d)	Was your last visit to the dentist since 1948, or before 1948?	1948 or since 10 Before 1948 11	Do to Q.80
	IF CODE (3)		
(e)	Has this before the new charges started on April 1st 1971 or after they had started?	Before April 1st 1 After April 1st or after 2	Do to Q.83
	TO ALL WHO HAVE BEEN TO DENTIST IN LAST 10 YEARS (CODES 1 - 7 INCLUSIVE)		
83	The last time you wanted to see a dentist, how far ahead did you have to make the appointment with him, once you wanted one?		
	IF SEVERAL (A)		
84	For the treatment you needed at that time did you visit the dentist once, or several times?	One visit 1 Several A	Ask (a)
	IF SEVERAL (A)		
(a)	About how many visits did you make for that course (set) of treatment? (A COURSE OF TREATMENT INCLUDES FITTING DENTURES)		
85	In (all) the visit(s) you made to the dentist for that set of treatment? What did you have done?	Examination (check) 5 Extractions (teeth out) 6 Fitting of new dentures 7 Repair of old dentures 8 Other (SPECIFY) 9	Ask (b) Ask (b) Ask (b) Ask (b) Ask (b)
	Was your treatment under the National Health Service or was it private?	National Health Service 1 Private 2 Other (SPECIFY) 3	Ask (b) Ask (b) Ask (b)
86	Did the dentist tell you about what treatment he was going to carry out or not?	Dentist told me A Not 6	Ask (b) Ask (b) Ask (b)
	IF DENTIST TOLD PATIENT (A)		
(b)	Was what he said sufficient for you to understand or did you feel that you needed more explanation of what he was going to do?	Sufficient 7 Would have liked more 8	Ask (b) Ask (b) Ask (b)
88(a)	How much did the whole treatment cost?	Cost A Nothing 1 DK 2	Ask (b) Ask (b) Ask (b)
	RECORD ANY COMMENTS		
(b)	IF NOTHING (1)		
	Why was the treatment free?		

89(a)	Next time you go to the dentist will you go to the dentist or group of partners you went to last time or not?	Same as last time 1 Not 2	
	IF SAME AS LAST TIME (1)		
(b)	About how far is the dental surgery from here, would you say it was under a mile, between a mile and five miles or more than five miles?	Less than a mile 3 1-5 miles 4 More (SPECIFY) 5	
(c)	Do you go the dentist direct from home or from work, or are you not at work?	Not at work 6 At work, go from home 7 At work, either or both 8 At work, either or both 9	
(d)	How long does it take you to get to the dentist?	.....
(e)	How did you come to choose that particular dentist?		
(f)	Why will you change your dentist next time?		

IF INTERVIEWING IN THE HIGHLANDS

35	THAT IS IN AREAS 01 - 30	
(a)	Do you have any problems in this area in getting to the dentist, or not?	Highlands area 1 Not 2 Ask (a) Do to 0-90
(b)	What sort of problems?	Problems 3 Not 4 Ask (b) Do to 0-90
	PHONE FULLY	

TO ALL

90 Have you ever been sent, by a dentist, to a hospital for dental treatment?
 IF YES (1)
 (1) How long ago is it since he sent you to the hospital? (LAST OCCASION) time ago years months (IF LESS THAN 2 YEARS)
 (11) Why did he send you to the hospital?

91(a) What do you find most unpleasant during a visit to the dentist?

(b) What sort of qualities do you think make the best dentists?
 (sort of person)

92 Are there any points, or comments, which you would like to make about having false teeth?
 No 0

- 13 -

CLASSIFICATION - TO ALL

101

No.	(a) Relationship to Informant AND NAME FOR THOSE 16-21 YRS.	(b) Sex M F	(c) Date of Birth Day-Month-Tr	(d) Marital Status M S W	(e) Age finished full time education (if student only)
1	INFORMANT	1 2		3 4 5	16 yrs or more.....1 15 yrs .....2 14 yrs .....3 13 yrs .....4 12 yrs .....5 11 yrs or more.....5 Still being educated .....6
2		1 2		3 4 5	
3		1 2		3 4 5	
4		1 2		3 4 5	
5		1 2		3 4 5	
6		1 2		3 4 5	

102 What is the occupation of H.O.H.
 (GIVE OCCUPATION AND INDUSTRY)

OCCUPATION

INDUSTRY

INTERVIEWER

103 (1) IS THE INFORMANT THE HOST?

IF YES (1)

(11) ARE THERE ANY YOUNG PERSONS AGED 16-21 (INCLUSIVE) LAST BIRTHDAY IN THIS HOUSEHOLD?

(A WIFE AGED 16-21 IS A YOUNG PERSON)

IF YOUNG PERSONS (3)

(111) HOW MANY?

(1111) CHECK NAMES AGAINST THOSE ON ADDRESS LIST

(11111) HOW MANY ARE ON ADDRESS LIST, HOW MANY ARE NOT?

(111111) PLEASE ARRANGE TO INTERVIEW ALL THOSE YOUNG PERSONS WHO WERE NOT ON ADDRESS LIST.

GO TO Q-104

see Q-104 Q-104

- 14 -

People's attitudes sometimes vary according to what country they have lived in.

104(a)	Were you born in Scotland? (CHILDREN - UP TO 16 YRS)	Born in Scotland 1 Not A
(b)	Where were you born? GIVE COUNTRY	
105(a)	Did you spend most of your childhood in Scotland or not? (CHILDREN - UP TO 16 YRS)	Yes 1 No D
(b)	Where did you spend most of your childhood? GIVE COUNTRY	
106(a)	Was your father born in Scotland?	Father born in Scotland 1 Not B
(b)	Where was your father born? GIVE COUNTRY	
107(a)	Was your mother born in Scotland?	Mother born in Scotland 1 Not C
(b)	Where was your mother born? GIVE COUNTRY	
108	INTERVIEWER OBSERVE	White 1 Other 2

- 15 -

INTRODUCTION AS NECESSARY

109(a) The Home and Health Department is most interested in finding out about your attitudes and experiences, and we are very grateful for your help. We would like you to make a picture of your teeth, and if you are agreeable I'd like to come back in a few days and bring a dentist who would look over your teeth. He just makes a normal dental examination, and takes a picture for us as far as peoples dentures are concerned over the whole country. He only looks at your teeth, it involves no treatment of course.

(i) Length of time for examination.

(ii) He won't comment on your teeth at all, to you or anyone else (ethics).

(iii) Some things only a dentist looking at your teeth would see.

(iv) Results will help to estimate the need for treatment.

(v) Reassurance that it will not hurt at all.

Willing to have examination 7
Not 8

IF WILLING (7)

(b) Appointment details

IF NOT WILLING (8)

(c) NOTE ANY COMMENTS - GIVE FULL EXPLANATION ON COVER

- 16 -

Index

Adult Dental Health in England and Wales in 1968, 1, 3, 6, 10, 11, 58
comparison with Scottish survey, 185-91

Age

attendance pattern, 168, 170, 171, 186
cleaning of teeth, 151, 154, 167
dental condition, 36-43, 45-7, 50-7, 136, 186
dental health, opinions on factors involved with, 167
dentures
attitudes towards, 146-7
potential need for, 114-18
edentulous adults, 22-3, 25-30, 133-5, 185-6
full clearance, 107, 124-5
fully-dentured adults, 98
gum condition, 68-72, 74-6, 78, 172
Highlands and Islands *vs* Main Part of Scotland, 133
opinions on which sex loses teeth first, 177
opinions on why one sex loses teeth first, 180-4
partially-dentured adults, 81-2, 87
response to examination, 18-20
treatment, attitudes towards, 139-40
wearing of dentures, 87, 98

Attendance pattern, 47-8

age, 168, 170-1
cleaning of teeth, 149-53, 157, 167
comparison between England and Scotland, 186-7
dental condition, 49-57, 187
dental health, attitudes towards, 54, 167-8
dentures
attitudes towards, 146-8
potential need for, 115-18
edentulous adults (previous), 19, 108
full clearance, 125
fully-dentured adults, 99
gum condition, 74-9
Highlands and Islands *vs* Main Part of Scotland, 133
length of time since last visit, 20, 48, 87, 99, 126-7
opinions on which sex loses teeth first, 176
opinions on why one sex loses teeth first, 180-3
partially-dentured adults, 49, 87, 118
response to examination, 18-20
sex, 169-71
social class, 169-71
treatment, attitudes towards, 141-3, 186-7
wearing of dentures, 87, 99

Base numbers, *see*: Sample; Weighting

Bridges, 32

Brushing, Tooth, *see* Cleaning of teeth

Calculus, 61-2

age, 69-70, 72, 74, 75
attendance pattern, 74, 76-9
cleaning of teeth, 156-60
criteria, 61, 196
see also Appendix 1
dental fitness, 171-2
Highlands and Islands *vs* Main Part of Scotland, 137
inspection and substitution, 11, 61
sex, 71-2
social class, 71, 73-5, 78, 79

Calibration and recalibration, 2, 202-3
results of, 204-7
subjects used for, 13, 204

Caries, *see* Decayed teeth

Child-bearing (relation to tooth loss), 178-84, 191

Clasp support (influence on gum condition), 161-5

Cleaning of teeth, 149-60

attendance pattern, 76
debris, 74
decay experience, 155-6
dental health, opinions on role in, 166-7
frequency of, 149-51, 152, 153
method of, 151-4
periodontal inflammation, 74, 76
whether shown by dentist, 152-4

Criteria, Dental, 11, 195, 198
see also Appendix 1

Crowding, 197

Debris, 58-61

age, 68, 70, 72, 74, 75
attendance pattern, 74, 76-9
cleaning of teeth, 74, 156-60
criteria, 58, 196
see also Appendix 1
dental fitness, 171-2
dentures, 84, 95
Highlands and Islands *vs* Main Part of Scotland, 137
inspection and substitution, 11, 58-9
sex, 71-2
social class, 71, 73-5, 78, 79

Decayed teeth

age, 38-43, 45-7, 50-7
attendance pattern, 49-57
average number of, 35
cleaning of teeth, 155-6
criteria for examination, 195, 196, 198
see also Appendix 1
decayed (not previously treated), 33
age, 38-9
average number of, 34
cleaning of teeth, 155-6

- Decayed (not previously treated) (contd)
 teeth subsequently lost for denture provision, 121
 teeth subsequently lost for full clearance 121, 123-4, 126-7, 129, 130, 190
 decayed and filled, 33
 age, 38-9
 average number of, 34
 teeth subsequently lost for denture provision, 121
 teeth subsequently lost for full clearance 121, 123-4, 126-7, 129, 130, 190
 definition, 33
 dental fitness, 171-3
 Highlands and Islands *vs* Main Part of Scotland, 136-7
 risk, teeth at, 40, 171
 sex, 41-3, 52, 53
 social class, 44-7, 54-7
 unrestorable, 32
 age, 38-9
 average number of, 33-4
 teeth subsequently lost for denture provision, 121
 teeth subsequently lost for full clearance 121, 123-4, 126-7, 129, 130, 190
- Dental attendance pattern, *see* Attendance pattern
- Dental condition, 32-57
see also: Decayed teeth; Filled teeth; Missing teeth; Sound and untreated teeth
 age, 36-41, 43, 45-7, 50-7, 136, 186
 attendance pattern, 49-57
 comparison between England and Scotland, 186-7
 definition of conditions, 32
 dental fitness, 171-3
 edentulous adults (previous), 108-9
 Highlands and Islands *vs* Main Part of Scotland, 136-7
 partially-dentured adults, 32-3, 36-7
 sex, 41-3, 51-4, 57, 136-7
 social class, 44-7, 52, 54-7, 136
 teeth subsequently lost for denture provision, 121, 123
 teeth subsequently lost for full clearance 124-31, 190
 treatment, preferences for, 143-45
- Dental Estimates Board, 13-16, 120, 190
- Dental fitness, *see* Dental Health
- Dental health, *see also* Treatment
 attendance pattern, 168
 attitudes towards, 54, 184, 190-1
 cleaning of teeth, 155-9
 comparison between England and Scotland, 185-91
 dental fitness,
 achieved, 171-3, 188
 definition, 171
 dental service, role of, 22, 31, 190-1
 dentures, provision of, 109-10
 gum condition, 76
 Highlands and Islands *vs* Main Part of Scotland, 138
 opinions on factors involved with, 166-8
- Dental status, 8, 17-18, 21
see also Edentulous adults
- Dentists, recruitment for survey, 12, 194
- Dento-facial anomalies, 197
- Dentured adults *see*: Fully-dentured adults; Partially-dentured adults
- Dentures, *see also*: Fully-dentured adults; Partially-dentured adults; Wearing of dentures
 age of, 99
 attitudes towards, 146-8
 condition of, 84, 87, 95, 97
 damage caused by, 85-7, 96, 105, 161-5
 definition of need for, 111-12
 difficulties with, 90-3, 101-106
 examination
 availability for, 19, 83
 procedure, 12, 197, 199
 fit of, 85-6, 89, 91-3, 96-7, 99-105
 involvement with natural teeth, 161-5
 material, 83-4, 86, 88, 94-5
 potential need for and subsequent provision of, 111-24, 190
 preference for as a reason for early tooth loss, 178-84
 repair, state of, 84-5, 95, 99
 teeth, which replaced, 89-90, 113-14
- Diet
 dental health, opinions on role in, 166-8
 tooth loss, opinions on role in, 178-84
- Distance from dentist, 132-3
- Down-weighting, *see* Weighting
- Drinking (relation to tooth loss), 178-84, 191
- Edentulous adults, 22-30
see also: Fully-dentured adults; Total tooth loss
 age, 22-3, 25-30, 107, 133-5, 185-6
 attendance pattern (previous), 108
 comparison between England and Scotland, 185-6
 dental health, opinions on, 167
 dentures
 experience of prior to full clearance, 106
 extent of provision, 94, 136, 188
 full clearance, who suggested, 109
 Highlands and Islands *vs* Main Part of Scotland, 133-5
 opinions on which sex loses teeth first, 175
 opinions on why one sex loses teeth first, 180-3
 response to examination, 18-19
 sex, 22-3, 29-30, 107-8, 185, 190
 social class, 24-7, 134-5
 teeth, number lost on last occasion, 106-8
 125, 189-90
 treatment, previous experience of restorative, 108-9
- Edentulousness, *see*: Edentulous adults; Total tooth loss
- England and Wales, *see also* Adult Dental Health in England and Wales in 1968
 dental health, comparison with Scotland, 185-91
 edentulousness, compared with Scotland, 22-9
- Equipment used for examination, 10-11, 200
- Estimates Board, Dental, *see* Dental Estimates Board
- Examination, Dental, 1-2, 6-10, 18-20

Examination, Dental, (contd)

- see also* Criteria chart, 195, 201, 220
- content, 11-12
- dentures, availability of, 83, 94-5
- equipment used, 10-11, 200
- limitations, 10
- response to, 2, 8-10, 17-21
- team used, 200

Fieldwork, 2, 4, 7, 202-3

- see also*: Examination, Dental; Interview

Filled teeth

- criteria, 195-6, 198
- see also* Appendix I
- edentulous among those who subsequently became, 108-9
- filled and decayed teeth
- age, 38-9
- average number of, 34
- definition, 33
- teeth subsequently lost for denture provision, 121
- teeth subsequently lost for full clearance
- 121, 123-4, 126-7, 129-30, 190
- filled otherwise sound teeth
- age, 39-43, 45-7, 50-7
- attendance pattern, 49-57
- average number of, 34-5
- definition, 32
- sex, 41-3, 52-3
- social class, 44-7, 54-7
- teeth subsequently lost for denture provision, 121
- teeth subsequently lost for full clearance
- 121, 123-4, 126-7, 129-30, 190
- Highlands and Islands *vs* Main Part of Scotland, 136-7
- Preference for, 143-5

Fit of dentures, *see* Dentures

Fluoride (opinions on, in relation to dental health), 166-8

Full clearance, *see*: Edentulous adults; Total tooth loss

Fully-dentured adults, 94-110

- age, 98, 107
- attendance pattern, 99
- dentures
- difficulties with, 101-6
- wearing of, 97-103, 105-6, 136-7, 188
- Highlands and Islands *vs* Main Part of Scotland, 136
- hyperplasia, 96
- mucosal inflammation, 96, 105
- response to examination, 18-19
- sex, 99
- social class, 99
- ulceration, 96
- who still retain some natural teeth, 94

Gum condition, 58-79

- see also*: Calculus; Debris; Occlusion; Overbite and Overjet; Periodontal Extraction; Periodontal score; Recession
- age, 68-72, 74-6, 78
- attendance pattern, 74-9
- cleaning of teeth, 156-60
- comparison between England and Scotland, 187-8

Gum condition (contd)

- criteria, 11-12, 196-9
- see also* Appendix I
- dental fitness, 171-3
- dentures, influence of, 161-5
- Highlands and Islands *vs* Main Part of Scotland, 137
- partially-dentured adults, 161-5
- response to examination, 18
- sex, 71-2
- social class, 71, 73-5
- teeth subsequently lost for full clearance, 131

Gum support (influence on gum conditions), 161-5

Highlands and Islands, 2, 3, 7, 132-8

- see also* Sample
- definition, 3

Hyperplasia

- criteria, 197
- see also* Appendix I
- fully-dentured adults, 96
- partially-dentured adults, 85

Inflammation, *see*: Mucosal inflammation; Periodontal score

Interview, 1-2, 5-8, 18-20

- questionnaire, *see* Appendix II
- response to, 2, 6-8

Islands, *see* Highlands and Islands

London and the South East

- attendance pattern compared with Scotland, 186
- dental condition compared with Scotland, 186-7
- edentulousness compared with Scotland, 22-9, 185-6
- treatment preferred for aching back tooth compared with Scotland, 186-7

Main Part of Scotland, 133-8

- see also* Sample

Missing teeth

- adults who rely wholly on natural teeth, 32-3, 37
- age, 36-7, 41-3, 45-7, 50-7
- attendance pattern, 49-57
- average number of, 33, 35
- Highlands and Islands *vs* Main Part of Scotland, 136-7
- partially-dentured adults, 32-3, 36-7
- reasons for loss, 7, 33
- sex, 41-3, 52-3
- social class, 44-7, 54-7

Mucosal inflammation

- fully-dentured adults, 96, 105
- partially-dentured adults, 85-6, 92

Non-response, *see* Response

North of England

- attendance pattern compared with Scotland, 186
- dental condition compared with Scotland, 186-7

North of England (contd)

- edentulousness compared with Scotland, 22-9, 185-6
- treatment preferred for aching back tooth compared with Scotland, 186-7

Occlusion

- full dentures, between, 96-7, 100-101, 104-5, 197
- natural teeth, between, 67

Oral hygiene, *see*: Calculus; Debris

Overbite and overjet, 67-8, 197

Partially-dentured adults, 31, 80-93

- age, 81-2, 87, 118
- attendance pattern, 49, 87, 118
- comparison between England and Scotland, 188-9
- dental condition, 32-3, 36-7
- dental fitness, 171
- dentures
 - difficulties with, 90-3
 - further need of, 117-19
 - subsequent provision of further, 122-4
 - wearing of, 86-93, 114, 118, 137, 189
- full clearance (subsequent) among, 124, 128, 190
- gum condition, 161-5
- Highlands and Islands *vs* Main Part of Scotland, 137
- hyperplasia, 85, 197
- mucosal inflammation, 85-6, 92
- occlusion, 67
- overbite and overjet, 67-8
- pattern of dentures among, 80-3, 112-13
- response to examination, 18
- sex, 81-2, 87
- social class, 82-3, 87, 89
- teeth, denture role of those retained, 161-5
- ulceration, 85, 197

Periodontal extraction, 65

- age, 69-72, 74-5, 172
- attendance pattern, 76-7
- criteria, 65, 196
- see also* Appendix 1
- dental fitness, 172
- need for, 65, 188
- sex, 71-2
- social class, 71, 73-5
- teeth subsequently lost for denture provision, 121
- teeth subsequently lost for full clearance, 124, 128-31, 190
- total tooth loss, 130-1

Periodontal score, 62-5, 187-8

- age, 69-70, 72, 74-5
- attendance pattern, 76-9
- cleaning of teeth, 156-60
- comparison between England and Scotland, 187-8
- criteria, 63, 196
- see also* Appendix 1
- dental fitness, 171-2
- dentures, previous experience of, 131
- Highlands and Islands *vs* Main Part of Scotland, 137
- inspection and substitution, 62-3
- partial dentures, 161-5
- sex, 71-2

Periodontal score (contd)

- social class, 71, 73-5, 78-9
- teeth subsequently lost for full clearance, 130-1

Pilot study, 2, 198

- changes in criteria resulting from, 198-9

Pocket, *see* Periodontal score

Probe, 196, 200

Questionnaire, *see* Interview

Recalibration, *see* Calibration and recalibration

Recession, 65-6

- age, 69-70, 72, 74-5, 172
- attendance pattern, 76-7
- criteria, 65, 196
- see also* Appendix 1
- dental fitness, 172
- partial dentures, 161-5
- sex, 71-2
- social class, 71, 73-5

Response

- examination, 2, 8-10, 17-21
- interview, 2, 6-8

Re-weighting, *see* Weighting

Risk, Teeth at,

- age, 38, 40
- decay, 40, 171
- dental fitness, 171-2
- periodontal score, 64

Sample, 1-16, 19

- Highlands and Islands, 2-3, 8, 21
- Main Part of Scotland, 4, 8, 21
- size, 8, 9, 21
- supplementary sample, 3-6

Sex

- attendance pattern, 169-71
- cleaning of teeth, 150, 167
- dental condition, 41-3, 52-4, 57, 136-7
- dental health, 167, 190
- edentulous adults, 22-3, 107-8, 185, 190
- full clearance, 125
- fully-dentured adults, 99
- gum condition, 71-2
- opinions on which sex loses teeth first, 174-7, 191
- opinions on why one sex loses teeth first, 178-83, 191
- partially-dentured adults, 81-2, 87
- response to examination, 18-20
- treatment, 42
- attitudes towards, 140-1

Smoking (relation to tooth loss), 178-84, 191

Social class

- attendance pattern, 169-71
- cleaning of teeth, 150, 167
- definition, 24
- dental condition, 44-7, 52, 54-7, 136
- dental health, opinions on, 167
- edentulous adults, 24-7, 134-5
- fully-dentured adults, 99

Social class (contd)

- gum condition, 71, 73-5, 78
- opinions on which sex loses teeth first, 176
- opinions on why one sex loses teeth first, 180-3
- partially-dentured adults, 82-3, 87, 89
- response to examination, 18-20
- treatment, attitudes towards, 140-3

Social Survey Division, 1-2, 194

Sound and untreated teeth

- age, 40-3, 45-7, 50-7
- attendance pattern, 49-57
- average number of, 34-5
- Highlands and Islands *vs* Main Part of Scotland, 136-7
- sex, 41-3, 51, 53
- social class, 44-7, 54-7
- teeth subsequently lost for denture provision, 121
- teeth subsequently lost for full clearance, 121, 123-4, 126-7, 129-30, 190

Status, Dental, *see* Dental status

Subgingival calculus, *see* Calculus

Supragingival calculus, *see* Calculus

Sweets (opinions on role in dental health), 166-8

Total tooth loss, 22-30

- see also* Edentulous adults
- attitudes towards, 148, 186, 191
- comparison between England and Scotland, 185-6, 189-90
- comparison over time of prevalence in early life, 28-30
- condition of teeth extracted, 121, 123-31
- full clearance
 - potential need for, 118-19, 190
 - subsequent, 124-30
 - who suggested, 109
- Highlands and Islands *vs* Main Part of Scotland, 133-5
- opinions on which sex loses teeth first, 174-7
- opinions on why one sex loses teeth first, 177-84
- reasons for, 128-31, 191
- teeth, number extracted at full clearance, 106-8, 125, 189-90

Toothache

- preference for type of treatment of, 139-46, 186
- response, 18

Tooth cleaning, *see* Cleaning of teeth

Tooth loss, *see*: Edentulous adults; Missing teeth; Total tooth loss

Training, 2, 11-13, 194, 201-2

Treatment, *see also*: Dental health; Dental Condition

- dentures, attitudes towards, 146-8, 191
- extractions, preference for, 139-46
- restorative
 - decayed teeth showing evidence of, 33
 - preference for, 139-46, 186-7

Treatment (contd)

previous

- as measure of dental health, 186-7
- evidence of and number of teeth extracted at full clearance, 108-9
- evidence of and response to examination, 18-20

Ulceration

- fully-dentured adults, 96
- partially-dentured adults, 85, 197

Unrestorable teeth, *see*: Decayed teeth; periodontal extraction

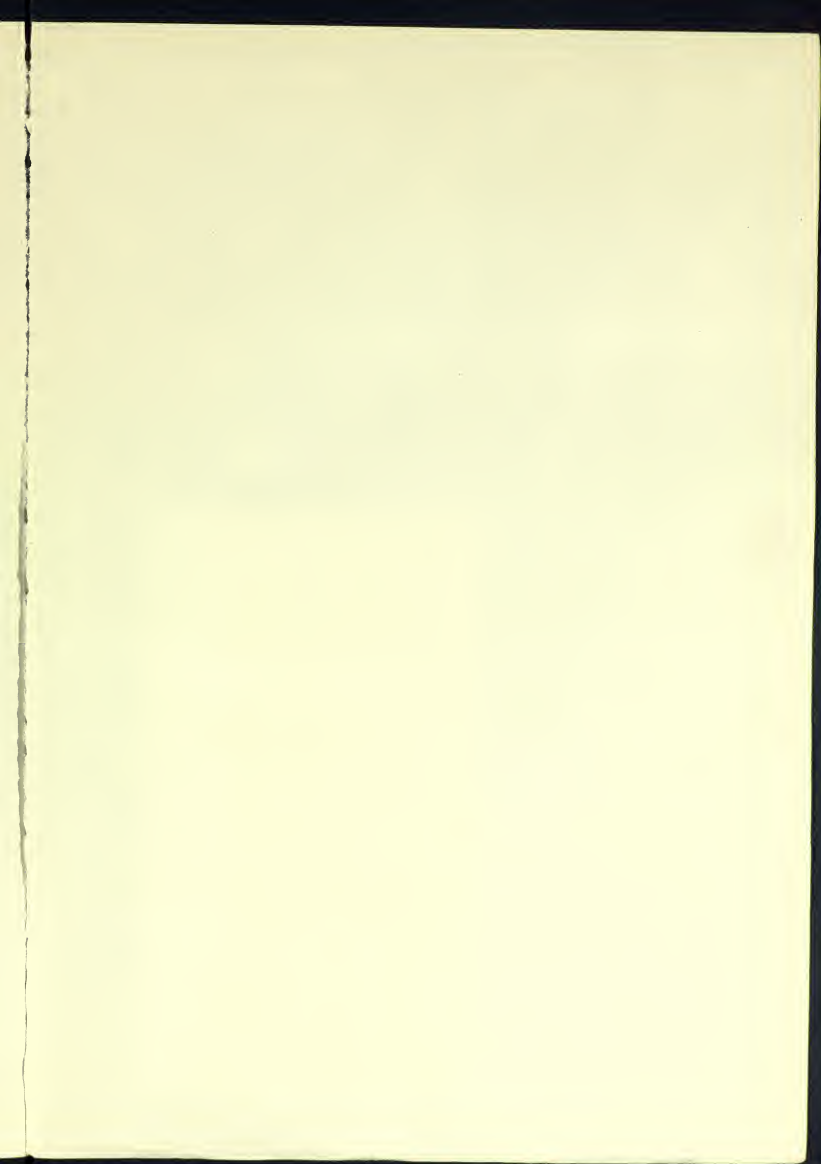
Wales, *see* England and Wales

Wearing of dentures

- acceptability of, 87-8
- difficulties with, 90-3, 102-3, 105-6
- fully-dentured adults, 97-101, 188
- Highlands and Islands *vs* Main Part of Scotland, 136-7
- partially-dentured adults, 86-93, 189
- potential need for dentures, 114, 118

Weighting, 2-3, 5, 21





SOUTHAMPTON UNIVERSITY LIBRARY

Date of Issue

10 MAY 1975

~~13 MAY 1975~~
78

~~25 JUL 9/5~~

407



HER MAJESTY'S STATIONERY OFFICE

Government Bookshops

49 High Holborn, London WC1V 6HB

13a Castle Street, Edinburgh EH2 3AR

41 The Hayes, Cardiff CF1 1JW

Brazennose Street, Manchester M60 8AS

Southey House, Wine Street, Bristol BS1 2BQ

258 Broad Street, Birmingham B1 2HE

80 Chichester Street, Belfast BT1 4JY

*Government Publications are also available
through booksellers*